Cumberland County Council.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH,

F. H. MORISON, M.D., D.P.H.,

WITH A

Summary of the Annual Reports of the District Medical Officers of Health,

FOR THE YEAR 1914.

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COUNTY COUNCIL OF CUMBERLAND.

To the Chairman and Members of the
Health Committee.

Gentlemen,

I have the honour to present to you my Seventh Annual Report on the Health and Sanitary Condition of the Administrative County of Cumberland, together with a summary of the reports of the District Medical Officers of Health.

It is never an easy matter to write an annual report in the midst of more important and pressing work, and this year the difficulties have been considerably increased by abnormal pressure of other work, and also from the fact that one had always to keep in mind the inadvisability of making any suggestions which might lead to expenditure which could be be postponed, and which it would during the present crisis be impossible to carry out.

I have,therefore, limited my report chiefly to a record of the work that has been done during the year under review.

In order to lessen the cost of printing, the usual charts and diagrams have been omitted.

It is most gratifying to be able to present to you at the present time the most satisfactory report, from a statistical point of view, which it has been my pleasure to prepare.

A glance at the Principal Vital Statistics will show that the Birth-rate is slightly higher, the Death-rate slightly lower, and the Infant Mortality rate considerably lower, than the corresponding figures for the whole of England and Wales.

Since publishing my last report, we have suffered a grievous loss in the death of Mr. H. C. Howard, who was for so many years Chairman of the County Council, and who always took the keenest interest in the work of your Committee from its inception. His genial presence and kindly advice have been sadly missed, and probably by none more than by your Officials.

I desire to express my indebtedness to the Officials of the various districts, who have so willingly given me assistance, to each member of my staff, and more especially to you, Mr. Chairman and Gentlemen, for your invariable kindness and consideration.

Your obedient servant,

F. H. MORISON.

HEALTH DEPARTMENT,
48 WARWICK ROAD,
CARLISLE, *July*, 1915.

PRINCIPAL VITAL STATISTICS.

	England & Wales.	*Administrative County.*	
	1914.	1914.	1913.
Birth-rate	23.6	24.2	23.5
Death-rate	13.9	13.6	14.3
	*13.6	*12.8	*13.6
Zymotic Death-rate	—	0.7	0.7
Phthisis	—	0.8	0.9
Total Tuberculosis Death-rate	—	1.09	1.3
Respiratory Disease	—	1.9	2.0
Cancer Death-rate	—	0.9	1.1
Infant Mortality Rate	105	94	108

*Corrected Rates.

AREA AND POPULATION.

Cumberland is the only County in England and Wales of which it can be said that the ancient County is co-extensive with the Administrative and with the Registration County.

Since the severance of the City of Carlisle, the County contains an area, exclusive of that covered by water, of 968,598 acres, and a population estimated to the middle of the year 1914 of 215,652.

The population at the Census of 1911, and the estimated population of 1914 are shown, for each Urban and Rural district, in Table I., columns 3 and 4.

BIRTHS.

The Births registered in the County during 1914 numbered 5,248, eleven of these, however, belonged to districts not in the County, leaving the net number of births 5,237, giving a birth-rate of 24.2 per 1,000 of population, compared with 6,298, and a rate of 23.5 per 1,000 of population.

It is necessary to remember, however, that in the numbers given for 1913, figures for the City of Carlisle are included.

In the Urban Districts there were 3,137 births, giving a birth-rate of 26.1, and in the Rural districts 2,100, giving a rate of 21.8 per 1,000 of population.

The corresponding figures for the previous year are :—

Urban districts 4,217 brths, and a rate of 24.5.
Rural districts, 2,081 births, and a rate of 21.7 per 1,000 of population.

The following table shows for comparison the birth-rates for the County, and for its Urban and Rural districts for the past ten years, with those for England and Wales.

	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
England & Wales	27.2	27.0	26.3	26.5	25.6	24.8	24.4	23.8	23.9	23.6
Admin'tive County	26.6	26.2	25.0	26.04	25.0	24.1	24.7	23.9	23.5	24.2
Urban Districts ..	27.6	27.3	26.3	27.5	25.8	24.8	25.9	25.1	24.5	26.1
Rural Districts ..	25.2	24.2	22.8	23.4	23.8	22.9	22.7	21.9	21.7	21.8

Arranged in the order of their birth-rates, the Urban districts stand thus :—

Arlecdon & Frizington	32.6	Harrington	26.3
Whitehaven	30.6	Cockermouth	25.2
Cleator Moor	29.7	Millom	21.3
Egremont	28.2	Penrith	20.2
Maryport	27.7	Holme Cultram	19.6
Workington	26.9	Wigton	18.1
Aspatria	26.6	Keswick	17.7

And the Rural districts thus :—

Cockermouth	27.1	Alston	18.5
Whitehaven	24.9	Bootle	18.3
Wigton	22.4	Brampton	18.3
Longtown	21.4	Penrith	17.9
Carlisle	18.8		

DEATHS.

The deaths in the County numbered 2,871, but in addition there were 69 deaths of persons belonging to the County who died outside the County area, and so must be added to the total, thus giving a net total of 2,940 deaths of persons belonging to the County in the year.

This gives a recorded death-rate of 13.6 per 1,000 per annum, compared with a rate of 14.3 in 1913.

In the Urban districts there were 1,727 deaths registered, giving a recorded death-rate of 14.4, and in the Rural districts 1,132 deaths, and a rate of 11.8.

The following table shows the death-rate for the County, and for its Urban and Rural districts during the past 10 years, and those for England and Wales during the same period :—

	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
England & Wales..	15.2	15.4	15.0	14.7	14.5	13.4	14.6	13.3	13.4	13.9
Admin'tive County	15.5	14.9	15.8	15.3	15.0	14.8	14.3	15.1	14.3	13.6
Urban Districts ..	16.2	15.6	16.5	15.8	15.6	15.2	15.0	16.1	14.5	14.4
Rural Districts ..	14.3	13.7	14.5	14.6	14.03	14.0	13.0	13.4	13.0	11.8

The corrected death-rate (*i.e.*, the death-rate corrected for age and sex distribution) is found by multiplying the recorded death-rate by a "factor of correction," and is —

In the County	12.8
,, Urban Districts	14.0
,, Rural Districts	10.7

Arranged in the order of their "corrected" death-rate, the Urban districts stand thus :—

Egremont	17.3	Maryport	14.0
Cleator Moor	17.0	Millom	13.3
Whitehaven	15.9	Harrington	11.7
Cockermouth	15.3	Holme Cultram	11.4
Arlecdon & Frizington	14.9	Wigton	10.7
Penrith	14.2	Aspatria	9.2
Workington	14.1	Keswick	7.8

And the Rural districts thus :—

Longtown	12.4	Cockermouth	10.1
Brampton	12.2	Penrith	10.0
Whitehaven	12.2	Alston	9.6
Wigton	11.2	Bootle	7.8
Carlisle	10.3		

INFANTILE MORTALITY.

The term infant mortality is used to express the number of children who die before reching the age of one year, and is generally shown as being so many per 1,000 births registered.

5,237 births were registered. There were in the year 495 deaths of children under one year of age, so that the infant mortality was at the rate of 94 per 1,000 births, being 14 below the infant mortality of the previous year, and 9 below the mortality of England and Wales.

This is the lowest infant mortality ever, so far as I can find, recorded in the County of Cumberland.

In the Urban districts there were 3,137 births and 324 deaths of infants under one year of age, so that the infant mortality was at the rate of 103 per 1,000 births, 14 per 1,000 lower than in the previous year, and in the Rural districts 2,100 births, 171 deaths of infants, giving an infant mortality rate in Rural districts of 81 per 1,000 births, 9 per 1,000 below that of last year.

The following table shows the infant mortality in the County, and in its Urban and Rural districts, compared with that of England and Wales, for the past 10 years.

	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
England & Wales..	128	133	118	121	108	106	130	95	109	105
Admin'tive County	129	124	129	126	111	110	117	110	108	94
Urban Districts ..	141	139	128	134	123	119	127	115	117	103
Rural Districts ..	106	99	132	109	89	92	98	101	90	81

Arranged in the order of their infant mortality, the Urban districts stand thus :—

Whitehaven	130	Millom	97
Cockermouth ..	127	Arlecdon & Frizington	94
Maryport	123	Egremont	89
Harrington	102	Wigton	89
Cleator Moor	101	Aspatria	55
Penrith	100	Holme Cultram ..	44
Workington	98	Keswick	38

And the Rural districts thus :—

Longtown	136	Penrith	58
Wigton	125	Carlisle	50
Whitehaven	113	Bootle	48
Alston	88	Brampton	42
Cockermouth	65		

This infant mortality rate of 94 per 1,000 births is the lowest that I have ever had to record in the County, and so far as I can trace, is the lowest ever recorded.

It is also satisfactory to note that the infant mortality for the County is below the average of that for England and Wales.

Satisfactory as this is, even for one year, we must not be led into erroneous conclusions.

An examination of the above table will show that the low average for the Administrative County is due to the extraordinarily low infant death-rate in a few of the sanitary districts, and not, as one would hope to see, to an all round improvement.

The districts which are particularly noticeable for their low infant mortality rate, are, Urban Districts—Aspatria (55), Holme Cultram (44) and Keswick (38), and of Rural districts—Penrith (58), Carlisle (50), Bootle (48) and Brampton (42).

On the other hand, some of the districts show exceptionally high infant death-rates, so high in fact that I hope the District Councils concerned will have special enquiry made into the causes of this high infant mortality, and will take immediate steps to remedy the defects in their areas which are the cause of this annual loss of infant life.

The distrcts showing the highest infant mortality rates are, in Urban districts—Whitehaven (130), Cockermouth (127), Maryport (123), and in Rural districts—Longtown (136), Wigton (125), Whitehaven (113).

The Rural district of Longtown, it will be noticed, has the highest rate of infant mortality of any sanitary district in the County.

Just as in considering a low average infant mortality, it may be misleading to draw conclusions from the figures of one year, so in the case of a high infant mortality, it may lead to erroneous deductions, therefore, I have worked out the average infant mortality rate for each sanitary district in the Administrative County over a period of seven years, 1908 to 1914, both inclusive, and this table shows that the districts mentioned as having the credit of keeping the infant mortality down during the years are really those districts in which the infant mortality is habitually low, for over a period of seven years those same districts show the lowest figures, and on the other hand those districts which have the highest mortality for the year, although they do not in all cases show the highest mortality taking the average over the longer period, yet they show a sufficiently high average to indicate that measures are necessary to bring that average down.

Average infant mortality during the period 1908 to 1914—

Urban Districts.

Whitehaven	137
Workington	133
Egremont	128
Cleator Moor	124
Millom	119
Arlecdon & Frizington	114
Wigton	113
Cockermouth	111
Penrith	108
Harrington	106
Maryport	104
Aspatria	94
Holme Cultram	91
Keswick	81

Rural Districts.

Whitehaven	118
Cockermouth	110
Wigton	103
Longtown	102
Penrith	75
Carlisle	74
Alston	71
Brampton	69
Bootle	51

Under ordinary circumstances the death-rate of infants is about one-third higher in Urban than in Rural areas, so that if we take 100 as what ought to be the maximum death-rate of infants in Urban areas, we can take 75 as what ought to be the maximum in Rural areas.

If then we take these figures as our standards, it will be noticed that in the year under review 5 Urban and 4 Rural areas showed an infant mortality above the standard, but if we take the average over the last seven years we find that 11 Urban and 4 Rural areas showed an infant mortality above the standard, and that 3 of the 4 are above the standard in both periods.

If figures were available, I have no doubt that just as great, or even greater, differences would be found to exist in the different parts of the same district, as those I have shown to exist in the different sanitary districts of the County. Even in those sanitary districts, which as a whole show a low infant mortality, I have no doubt that in the various parishes or wards into which those districts are divided enormous differences in infant mortality do exist, and in all probability two or three, or in some districts only one parish or ward is responsible for practically the whole infant mortality in the whole district.

I have no figures available to subdivide the various sanitary districts, but if the district Medical Officer of Health would give the figures separately for the various wards or parishes into which their districts are divided, this would at once enable us to note in which part of each district the infant mortality was highest, and consequently which part required most immediate attention, because, as the Chief Medical Officer to the Local Government Board states in one of his reports :—

> " Infant mortality is the most sensitive index we possess of social welfare and sanitary administration especially under Urban conditions."

The high infant mortality in some of the Rural areas is due in part to the fact that a considerable proportion of the population in these Rural areas are really living, in many of the larger villages, under conditions, as to housing, crowding, &c., which are essentially Urban in character, conditions which in Urban districts would not be tolerated.

The prevention of infant mortality has assumed for us an importance which in the present generation has never been equalled. With so many of the best lives in the country being sacrificed, it becomes more than ever important for Sanitary Authorities to do all in their power to preserve the lives of infants, and not only to preserve the lives, but to ensure by every available means that the health of those who do survive is not endangered by having to live in houses and surroundings which are not only a menace, but a constant source of danger to health.

The following table shows the deaths of infants classified for causes and under age groups, which occurred in the County during 1914.

INFANT MORTALITY.

1914.—Nett Deaths from stated causes at various Ages under 1 year of age.

CAUSES OF DEATH.	Under 1 week		1-2 weeks		2-3 weeks		3-4 weeks		Total under 4 weeks		4 weeks and under 3 months		3 months and under 6 months		6 months and under 9 months		9 months and under 12 months		Total Deaths under 1 year	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Smallpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chickenpox	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
Measles	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Whooping Cough	..	..	..	..	..	..	1	..	1	..	3	1	7	4	7	1	7	2	25	8
Diphtheria and Croup ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..
Erysipelas	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1
Tuberculous Meningitis ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	3	..
Abdominal Tuberculosis ..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	3	..
Other Tuberculous Diseases	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	3	..
Meningitis (*not Tuberculous*)	..	..	..	..	..	1	..	..	..	1	1	..	3	1	1	3	..	..	5	5
Convulsions	5	5	..	..	2	..	..	2	7	7	6	2	7	5	3	2	4	1	27	17
Laryngitis	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Bronchitis	..	..	3	..	1	..	..	..	4	..	11	6	4	7	6	4	12	2	37	19
Pneumonia (all forms) ..	1	..	..	..	2	..	1	..	4	..	3	1	9	2	7	1	7	2	30	6
Diarrhœa	1	1	..	1	..	..	1	1	2	3	3	3	7	1	2	1	5	1	19	9
Enteritis	..	..	..	1	1	..	..	..	1	1	1	1	6	3	..	1	..	..	8	6
Gastritis	..	..	..	..	..	..	..	..	..	..	2	1	..	1	1	..	2	..	5	2
Syphilis	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	1	2
Rickets	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Suffocation, overlying ..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	1	1
Injury at birth	2	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2	..
Atelectasis	4	5	..	..	..	..	..	..	4	5	..	..	1	..	1	..	..	..	6	5
Congenital Malformations	6	3	1	..	1	..	..	1	8	4	..	1	..	..	..	..	..	..	8	5
Premature Birth ..	45	34	2	2	2	2	7	..	56	38	1	1	..	1	..	1	..	..	57	41
Atrophy, Debility and Marasmus	16	8	3	3	3	2	2	1	24	14	15	8	17	3	3	2	..	1	59	28
Other Causes	4	1	2	..	..	1	1	..	7	2	3	5	7	3	2	1	2	3	21	14
Totals	84	57	12	7	12	6	13	5	121	75	49	34	73	32	40	17	41	13	324	171
	141		19		18		18		196		83		105		57		54		495	

Nett Births in the year of—

Legitimate	Urban .. 2981	4945
	Rural .. 1964	
Illegitimate	Urban .. 156	299
	Rural .. 143	

Nett Deaths in the year of—

Legitimate infants	Urban .. 297	451
	Rural .. 154	
Illegitimate Infts.	Urban .. 27	44
	Rural .. 17	

Several items of interest are noticeable in the above table.

Summer Diarrhœa is one of the most fatal diseases of childhood, and it can generally be predicted that in a hot, dry summer, unless sanitary arrangements are exceptionally well looked to, a large number of deaths will be caused by it.

The table shows, however, that only 28 deaths were registered as due to Diarrhœa, and 14 to Enteritis, a total of 42 deaths due to gastro-intestinal complaints. It is obvious, I think, that the small number of deaths from Diarrhœa is not due to any extra sanitary precautions, because in many of the districts the conditions which favour the incidence of Diarrhœa are in existence, viz., large open midden privies infrequently emptied, collections of refuse of all kinds in close proximity to houses, dirty back-yards and premises, as well as carelessness and uncleanliness in handling all kinds of food, and, in particular, milk for infants

Respiratory diseases were responsible for 92 deaths, these, or at any rate the majority of them, probably followed either Measles or Whooping Cough, both of which diseases were prevalent during the latter part of the year.

The principle causes, however, as shewn by the table are Premature Birth and "Atrophy, Debility and Marasmus," the latter of which is in the great majority of cases a more or less scientific way of saying that the infant has been unable to survive the ordeal of an indiscriminate diet, or that its surroundings were such that to live was practically impossible, except for the very toughest.

The table shows that 28 per cent. of the deaths occur under the age of one week ; 39 per cent. under one month, and 77 per cent. under the age of six months.

It is often argued that these children who die so young are better dead, because they are naturally delicate. This, however, is not so, because at least 90 per cent. of all children born are born healthy. It is their bad surroundings and their improper feeding which cause so many deaths, and probably the best way of combating the ignorance of mothers is the home visits that are now paid by experienced Health Visitors.

CANCER.

Under this heading are included deaths registered as due to Cancer, Malignant Diseases, Scirrhus, Epithelioma, Sarcoma, &c.

The following table gives in order the death-rates from Cancer in the Urban and Rural districts :—

Urban.		*Rural.*	
Holme Cultram ..	1.9	Longtown	1.7
Penrith	1.8	Brampton	1.3
Cockermouth	1.7	Alston	1.2
Aspatria	1.4	Carlisle	1.0
Harrington	1.3	Wigton	1.0
Arlecdon & Frizington	1.1	Penrith	0.9
Egremont	1.1	Whitehaven ..	0.9
Wigton	1.0	Cockermouth ..	0.5
Keswick	0.9	Bootle	nil.
Maryport	0.9		
Workington	0.8		
Whitehaven	0.7		
Cleator Moor	0.7		
Millom	0.5		

The Cancer death-rate in the combined Urban districts was 1.03, in the Rural districts, 0.9, and in the Administrative County, 0.9 per 1,000 of population.

The corresponding figures for last year were 1.0, 1.1 and 1.1 respectively.

ZYMOTIC DISEASES.

The diseases usually included under this heading are :— Smallpox, Scarlet Fever, Diphtheria (including Membraneous Croup), Fevers (Enteric, continued, &c.), Measles, Whooping Cough, and Diarrhœa.

They were responsible for 159 deaths, equal to a death-rate of 0.7 per 1,000 of population ; compared with 203 deaths, and a rate of 0.7 per 1,000 in 1913.

In the Urban districts the death-rate was 0.9, and in the Rural districts 0.5 per 1,000, compared with 0.8 and 0.5 in 1913.

Arranged in the order of their Zymotic death-rates, the Urban districts stand thus :—

Maryport	1.8	Holme Cultram ..	0.4
Egremont	1.7	Penrith	0.4
Whitehaven	1.5	Harrington	0.2
Cockermouth	1.2	Keswick	0.2
Workington	0.9	Millom	0.1
Cleator Moor	0.8	Aspatria	Nil.
Arlecdon & Frizington	0.7	Wigton	Nil.

And the Rural districts thus :—

Longtown	1.1	Cockermouth ..	0.3
Whitehaven	0.8	Penrith	0.2
Brampton	0.7	Bootle	0.1
Wigton	0.7	Carlisle	0.08
Alston	0.6		

INFECTIOUS DISEASES (NOTIFICATION) ACT.

On February 5th, 1914, the Local Government Board issued regulations under Section 130 of the Public Health Act, 1875, requiring the notification of cases of Ophthalmia Neonatorum. These regulations came into force on 1st April, 1914.

There were, during 1914, 1,409 cases of notifiable infectious disease notified, 339 of these being of Pulmonary Tuberculosis, compared with 1,956 infectious diseases notified in 1913, so that there is a reduction of 547 in the cases notified during the year.

The following table shows the number of cases notified, and the ages at notification.

Cases of Infectious Disease Notified during 1914.

NOTIFIABLE DISEASE	NUMBER OF CASES NOTIFIED.															
	At all ages.		AT AGES—YEARS.													
			Under 1		1 and under 5 years		5 and under 15 years		15 and under 25 years		25 and under 45 years		45 and under 65 years		65 and upwards	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Smallpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera (C) Plague (P) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria (including Membraneous croup)	132	162	1	1	31	23	60	104	23	22	13	9	3	3	1	..
Erysipelas..	96	58	1	2	3	..	6	3	7	10	25	17	41	18	13	8
Scarlet fever	224	169	4	2	56	43	144	103	17	16	3	3	..	1	..	1
Typhus fever	7	..	..	..	..	..	..	..	1	..	5	..	1	..	..	..
Enteric fever	55	5	1	..	4	..	11	2	16	2	20	..	3	..	..	1
Relapsing fever (R) Continued fever (C) ..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Puerperal fever	8	3	*1	..	..	..	..	..	2	..	5	3	..	..	..	..
Cerebro-spinal Meningitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis	1	1	..	..	1	..	..	..	..	..	..	1	..	..	..	..
Ophthalmia Neonatorum	21	3	21	3	..	..	..	..	..	..	..	..	..	..	..	..
Pulmonary Tuberculosis †	208	131	1	1	4	2	67	28	30	33	79	42	21	22	4	3
Other forms of Tuberculosis ‡	82	42	3	..	11	6	41	21	8	1	10	11	6	3	1	..
	835	574	33	9	110	74	329	261	104	84	161	86	75	47	19	13
Totals	1409		42		184		590		188		247		122		32	

* Evidently a mistake in the District Report.
† Two cases of Pulm. Tuberculosis, ages not stated.
‡ Two cases Other forms of Tuberculosis, ages not stated.

SMALLPOX.

In August a memorandum was issued by the Local Government Board, on "The Steps required to be taken on the Notification of a Case of Smallpox."

The provision made for dealing with Smallpox is so inadequate that I publish this memorandum in the hope that some steps will be taken at an early date to make, at any rate some arrangements whereby the first case can be dealt with promptly.

At the present time, and under existing circumstances, one naturally hesitates to suggest any expenditure of public money. To those Authorities who have not any provision for isolating Smallpox, I would suggest that an arrangement be made with the Committee of Management of the nearest Smallpox Hospital to take a case in should one unfortunately arise in their district. To wait until a case does arise, and then try to make arrangements for isolating it, has, in the past, proved a very costly method in many parts of the country. This, as has been repeatedly pointed out, is a very badly vaccinated community, and, as a consequence, should Smallpox break out, its spread would be exceedingly rapid.

MEMORANDUM ON THE STEPS REQUISITE TO BE TAKEN ON THE NOTIFICATION OF A CASE OF SMALLPOX.

"At the present time an outbreak of Smallpox would be especially serious; and as there are possibilities of importation of Smallpox, it behoves all Sanitary Authorities to see that all preparations for dealing with this disease are in working order. The present Memorandum is concerned with the measures needed for promptly controlling the first notified cases of Smallpox, as it is on such action that success chiefly depends.

"The steps indicated below are those which would normally be taken in a well organised sanitary district; but it has been thought well to set them out, especially for the information of medical officers of health of smaller districts, and of deputy medical officers of health acting for officers who have gone on active military service.

"Recent vaccination or re-vaccination constitutes the only safeguard against attack for persons exposed to the infection of Smallpox, and all the measures set out below can be carried out with a much more certain prospect of success in a well vaccinated community. The measures to be taken for securing vaccination of the population in the event of a Smallpox outbreak are set out in the appended Memorandum (II.).

Notification of the Disease.

"The weekly statistical returns forwarded by the Local Government Board to every medical officer of health in the country should be carefully examined, in order that the presence of infection in the country may be early recognised.

"When the first case of Smallpox is notified in a sanitary area, the medical officer of health should at once confidentially acquaint each medical practitioner practising within the area, in order that he may be warned in connection with any suspicious case coming under his charge. At the same time neighbouring medical officers of health should be similarly warned.

"In the ordinary course, notification of cases of infectious disease is made through the post. For Smallpox this means the loss of valuable time. It is important that the medical practitioners in the sanitary area should immediately communicate personally or by telephone to the medical officer of health any suspicion they entertain as to a case of Smallpox, so as to enable the medical officer of health at once to visit the suspected patient with the practitioner. Medical officers of health of combined areas should arrange to secure the object aimed at in this paragraph by special local arrangements.

"The notification of a case of Smallpox calls for immediate inquiry by the medical officer of health into the movements of the patient—

(*a*) during the fortnight preceding the commencement of his attack; and

(*b*) during the period between the onset of his first symptoms and the hour of notification.

"Painstaking inquiry under the first heading will, in most instances, enable the source of infection in a previous patient to be ascertained. This patient may not previously have been recognised as having Smallpox; and in this event it becomes necessary to prepare an immediate list of all persons who have been in contact with him, and submit them to systematic surveillance, as also all persons who have been in contact with the notified patient.

" With the same object in view—the prompt discovery of unnotified cases of Smallpox—the notification of cases of Chickenpox may be made compulsory. In a number of outbreaks of Smallpox, valuable time has been lost by mistaking cases of this disease for Chickenpox.

" Following on the prompt recognition and notification of each case of the disease, the action required includes :—

1. The immediate removal of each patient to an isolation hospital ;
2. The satisfactory disinfection of the infected house and its contents, including persons who have been in contact with the patient ;
3. The tracing and daily surveillance of all known contacts ; and
4. The immediate vaccination or re-vaccination of these contacts.

Hospital Provision.

" Satisfactory hospital provision for Smallpox patients can rarely be improvised. A Sanitary Authority which has not such accommodation, either independently or under an agreement with some other Sanitary Authority, is incurring a heavy responsibility. Smaller Sanitary Authorities can best secure such provision by combined action with other Sanitary Authorities. The modern possibilities of communication by means of motor ambulances render it practicable for a single hospital to serve a large area. In view of the importance of having immediate hospital accommodation available for Smallpox patients and of the extreme ease with which the infection of Smallpox is spread, it should be arranged that :—

1. Hospital accommodation for isolating first cases should at once be available ;
2. More extended hospital accommodation should be available at short notice ;
3. The hospital should be as remote from inhabited districts as is practicable ;
4. The treatment of Smallpox should not be undertaken on the same site as that of any other disease ;

5. The hospital site should be adequately fenced, to prevent unauthorised communication between the occupants of the hospital and persons outside ;

6. The rules as to disinfection and as to vaccination or re-vaccination of staff should be as strictly enforced as in the case of contacts with patients, before their admission to hospital, *e.g.*, sanitary inspectors and disinfectors.

" The provision of an ambulance for the removal of patients is important.

" Some Sanitary Authorities have arranged for the treatment of cases of Tuberculosis in their Smallpox hospitals ; and these arrangements have been approved by the Board subject to satisfactory provision for the immediate hospital isolation of early cases of Smallpox. It is not suggested that these arrangements should be altered.

Disinfection.

" Thorough and complete disinfection is needed in this more than in any other infectious disease. This cannot be carried out unless there is an efficient disinfecting apparatus available for disinfection of the bedding and clothing of patients and contacts. As is well known, special care is needed in the conveyance of such articles to the disinfecting apparatus, as also in connection with ambulance provision.

" In order to secure adequate disinfection and cleansing of an infected dwelling by the well-known methods, it is desirable that persons who have been in contact with the patient should be removed to a shelter, where they can be temporarily housed during the process of disinfection of their clothing and bedding. At this time the offer of vaccination or re-vaccination should be again pressed if not previously accepted.

The Tracing and Surveillance of Contacts.

" As already indicated, a careful list should be compiled of all persons who may possibly have been in contact with the patient, or with the previous patient from whom he was infected. The preparation of this complete list should be one of the earliest tasks of the Public Health Staff, after the notification of a case of Smallpox. These contacts need careful surveillance during the 16 days after their exposure to infection. They should be visited daily and carefully questioned and examined, especially from the tenth day after their first exposure to infection onwards, until it is certain that the danger of development of disease has passed. When the contacts are numerous, this task is difficult and irksome ; but the success of action for controlling an outbreak depends largely on the completeness with which the task is carried out, and on the completeness with which the list of contacts has been prepared and the source of infection has been traced.

" If any contacts have removed to another area, the medical officer of health of that area should at once be informed. If, for any reason, it is feared that the list of contacts is incomplete, a house to house visitation may be desirable in the neighbourhood in which a case of Smallpox has occurred, to make inquiries as to suspicious illness and to advise vaccination or re-vaccination. If further cases are feared, common lodging houses and other collections of itinerant persons should receive special supervision.

" In view of the fact that Smallpox is now commonly derived from abroad, all notifications from port medical officers of health as to persons arriving in a given area from ships on which cases of Smallpox have occurred should receive the same attention as is given to local contacts.

The Vaccination or Re-vaccination of Contacts.

" The measures so far enumerated are only successful when they are carried out by a staff, including the medical officer of health, sanitary inspector, ambulance driver, disinfector, nurses and wardmaids, who have been rendered immune to Smallpox by recent vaccination or re-vaccination. That is the teaching of past experience.

" Similarly, every person who has been in contact with the Smallpox patient or his belongings, and who is unprotected by fairly recent vaccination or re-vaccination, should be so protected. When this can be done, the control of Smallpox becomes one of the most satisfactory measures in public health administration. Unless this can be done there is constant risk of a failure to control the disease.

" It is extremely important that vaccination should be carried out promptly after exposure to infection, and for this purpose the medical officer of health should act in the closest co-operation with the public vaccinator from the first. If any difficulty is anticipated under this heading, it is desirable that the Sanitary Authority should approach the Board of Guardians with a view to the medical officer of health being appointed deputy public vaccinator.

……………………………………………………………………

ARTHUR NEWSHOLME, *Medical Officer.*)

SCARLET FEVER.

This disease was not so prevalent as in the previous year, although cases were notified in each sanitary district.

393 cases were notified, 224 in Urban and 169 in Rural districts ; compared with 508 cases, 325 in Urban and 183 in Rural districts the previous year.

The disease, although not so prevalent, seems to have been of a more severe type than in 1913, 5 deaths are registered as due to Scarlet Fever against two in 1913, but this I am afraid does not represent anything like the fatality. Table III., at the end of this report, shows that 88 deaths were registered as due to Nephritis and Bright's Disease, and it can, I think, safely be concluded that much of this kidney disease was caused by a previous attack of Scarlet Fever.

Many cases of Scarlet Fever occur which are not recognised until " peeling " occurs, but many parents are wilfully negligent in allowing other children to be exposed to infection, not only allowing notified cases to run about the streets, but even having other children into their own infected houses to play with infected children.

Many outbreaks of infectious disease can be traced to earlier cases in another part of the district, or to another district altogether.

Many people, as soon as they know that one child, in a family of say three or four, has Scarlet Fever, immediately send the unaffected children away to stay with some relative or friend. Now these children, although they may not be showing any signs of illness, will in all probability have been exposed to infection, and one or more of them may, within a few days of being sent away, show signs of the same illness. Of course, where there is sufficient hospital accommodation, the need for sending the other children away from home is not present when the early cases are removed to hospital.

DIPHTHERIA AND MEMBRANOUS CROUP.

289 cases of this disease were notified, 127 in Urban and 162 in Rural districts, compared with 212 cases, 146 in Urban and 66 in Rural districts the previous year.

One or more cases were notified in every district in the County, with the exception of the Urban district of Egremont.

The marked increase in the number of cases is due entirely to the somewhat severe epidemic which was prevalent in the Rural district of Longtown.

An interesting and full account of the epidemic is given in the Annual Report of Dr. Rankine, the Medical Officer of Health of the district, as follows :—

> " An epidemic of Diphtheria visited the town during the year, giving a total number of 96 cases.
>
> " The first case occurred in Longtown on July 12th, 1913, in the house of a fish merchant. The case was sent forthwith to the Fever Hospital (in Carlisle, there being no local hospital). Inspection of the premises revealed nothing of a serious nature—some small defects in drainage were reported on and subsequently remedied. I was unable to form any idea as to the source of infection. No bacteriological tests were made for contacts. On August 25th another isolated case occurred in the town. In October, 1913, another case occurred in the fish shop above alluded to, followed eight days later by a second. Both were removed to hospital, where 1 case died (Laryngeal). Again no evidence was forthcoming as to the origin of the infection. Disinfection for the second time was thoroughly carried out. During November no

cases were reported, but I heard of many cases of sore throat in the town, some of which may possibly have been cases of Diphtheria. On December 12th a case was reported from a farm on the outskirts of the town, in a large family, who all gave a history of sore throat. The case died, and subsequently two other children were found suffering from paralysis, due, in my opinion, to the toxines of Diphtheria. I formed the opinion that the infection came from some of the school children who had had unrecognised attacks of Diphtheria, and this was carried to this house by the elder children. A neighbouring family was infected from these cases, as during the earlier cases of sore throat, which were not reported as Diphtheria, no isolation or separation of the two families was adopted. I think the occurrence of these cases shows that the infection was in the town, in the throats of many carriers, and also in many cases not seen by any medical man. This view is strongly supported by the fact that when "swabbing" was carried out systematically later on, a fair proportion of the contacts in reported cases were found to give positive reactions. Some few of these developed the disease in the acute form, while a larger part never showed any sign of illness.

"In January, 1914, 22 cases were reported, 2 of which were not accepted as Diphtheria, 3 cases in February, 13 in March, and 4 in April. In May 2 cases were reported, in June 7 cases, in July 4 cases, in August no cases were reported. In September there was a recrudescence amounting to a new epidemic, in which there were reported 29 cases. Among these were one series of 5 cases isolated in the country fourteen miles from Longtown, to which the infection was, in all probability, carried by the father of the family, who had, in the course of his occupation, spent a few days in Longtown, and who returned home with a developed sore throat. He infected the whole family, with one fatal case. A second series of 3 cases—there was no obvious source of infection—also in a family ten miles from the town. I was not able to find the source of these cases. In October 5 cases occurred, in November 3 cases, and December 4 cases.

"The source of the infection could not be traced to any one existing cause. No milk supply, nor the fish above mentioned, seemed to be at fault. But I think the spread of the infection may probably be put down to a combination of several factors. (1) The prevailing weather conditions were bad at the commencement of the true epidemic, and again in the later one—cold, windy, and much rain—the kind of weather one would expect to produce colds and sore throats. In fact, from my own observation, and from information given me by other practitioners, the whole period was remarkable for other types of sore throat, among which suppurative peritonsillitis (quinsey) was predominant. One might almost summarise the year as regards this district as a " throat " year.

" (2) The presence of a large number of children with diseased conditions of the throat. I had the advantage of help from Dr. Morison, the Medical Officer of Health for the County, in investigating the first epidemic, and on one occasion, when we inspected those children remaining at school, at least 80 per cent. were found with enlarged tonsils, and a fair proportion with bad teeth and abnormal nasal conditions. A few whose throats were suspicious were swabbed, and 3 positive results obtained.

" (3) We also found that the disposal of house refuse and closet waste—with some half-dozen exceptions all these closets are of the pail type—is not satisfactory. The insanitary conditions arising therefrom must be included as a factor by reason of the detrimental effect they have upon general health. I think, therefore, the epidemic may be ascribed to a combination of these three factors, all working together, granted that a virulent infection had been introduced.

" The methods adopted in dealing with the epidemic were as follows :—One or two cases at the commencement of the epidemic were sent to hospital in Carlisle, there being no local isolation hospital. But as this was not of any service in abating the epidemic, it was stopped and home isolation relied on. When, however, such isolation was obviously impracticable, or where, by reason of the occupation followed, it could not be expected, cases were sent to hospital. Shops where cases occurred were closed.

" The school was closed in January for three weeks, and again on a recrudescence of the epidemic for a second period of three weeks, which was subsequently extended to the end of the Easter hoildays. But in view of the social conditions in the town, I am exceedingly doubtful if this closure was of any value in abating the epidemic, and in the later recrudescence this step was not taken.

"On the re-opening of the school I attended and enquired for any cases of sore throats, and on subsequent occasions for lists of absentees, and when obtained these cases were enquired into at their homes. One case, bacteriologically not free, was found in school and sent home forthwith.

"On receipt of notification I visited the residence of the patient and took swabs of all those who had been exposed to the infection. Any found positive were directed to be treated as cases of Diphtheria, whether they showed any signs of the disease or not. Strict orders as to isolation were given in every case, and I asked that all contacts, whether proved bacteriologically free or not, should be injected with antitoxin as a prophylactic. In several families where this was done no further cases occurred. In every case also, outside contacts were sought for and swabbed whenever possible. Subsequently, generally, at an interval of three weeks after the notification, I revisited all the cases or positive contacts, and took swabs ; negative results were followed by thorough disinfection of the premises, no disinfection or removal of isolation orders being carried out until swabs at weekly intervals proved negative.

"As regards isolation, this in a great many cases was not satisfactory, and only became so after the Council empowered me to prosecute any cases infringing the orders given.

"In all cases I performed the bacteriological tests myself, taking the swabs on blood serum growing at 37° for 12-24 hours, and staining by Gram's method and the cresordin method. No tests were made for virulence. Hoffman's bacillus was found on several occasions, but I am not able to add any direct evidence on the part played in Diphtheria by this bacillus. I have to thank the Council for empowering me to take swabs in this epidemic. The value of this test is beyond doubt, chiefly on account of its enabling one to discover contacts and carriers, thereby reducing the possible sources of infection, and also by enabling a diagnosis to be firmly established in doubtful cases. I informed all practitioners in the district of this resolution by the Council, and full advantage was taken of the privilege.

" There is no doubt that swabbing, if carried out in a more general manner, and with the hearty co-operation of all practitioners—particularly in doubtful cases—would be of the greatest value in combating such epidemics ; for this small outbreak has, in my opinion, again proved that it is not from the declared cases that infection spreads, but from the doubtful missed cases, and from contact carriers. One hundred and fifty-eight swabs were reported on.

" There were 4 deaths (registered) from Diphtheria, which gives a death-rate of 4.16%. One death occurred during the course of the epidemic from Catarrhal Laryngitis, which may possibly have been Diphtheria. If that is included in the death-rate the total rate must be 5.20%. The deaths occurred at the ages of 10 years, 4 years, 11 years, 7 years, and that registered as Catarrhal Laryngitis, 6 years.

" The age distribution of reported cases is :—

1 year.	1—5	5—15	15—25	25—45	45—65
1	6	68	12	6	3

Your Committee instructed me to visit Longtown, and make a detailed report on the sanitary conditions, this was done, and the report has been submitted to you, and a copy sent to the Local Government Board.

TYPHUS FEVER.

Seven cases were notified in the Borough of Whitehaven, and the following reports were made by Dr. Fisher, the Medical Officer of Health :—

" WHITEHAVEN, *May 28th*, 1914.

GENTLEMEN,

" I regret to have to report the occurrence of several cases of Typhus Fever in the Borough. Some of these were notified as Enteric Fever, and removed to hospital where it was found that they were really Typhus, as reported to you at the time. The first case was that of J.S., who died on 28th February. This man had been going about until the previous day, and had personally called at the surgery of his doctor for advice on the evening of that day for the first time. His condition became rapidly worse and he died as stated within (†) thirty-six hours of his first complaining of illness. Though it was impossible to diagnose with certainty the nature of the illness, every precaution was taken to secure thorough disinfection of his house, and all who had been in contact with him were kept under observation. M.H., who was employed to lime-wash the house, became ill and was removed to hospital on the 26th March. He proved to have Typhus, and passed his crisis on the 3rd April. On the same day, Mrs. D., who had visited S. during his illness, died. This case had not been notified, but every precaution was taken to secure thorough disinfection of the house. S.G. assisted in preparing the body for burial and was subsequently notified as Enteric Fever, and removed to hospital. Her case proved to be one of Typhus, complicated with acute Pneumonia. She is still in hospital but convalescent. A.W., M.R. and J.H.F., who had been in contact with Mrs. G., developed the disease, and were removed to hospital on the 22nd May.

" Two cases have been admitted to hospital whose connection with those above referred to cannot be traced. S.G. was admitted on 26th March, and discharged on 24th April. J.H. was admitted on 27th May.

I am, Gentlemen,

Yours obediently,

J. B. Fisher,

Medical Officer of Health.

To the Street and Sanitary Committee

of the Whitehaven Town Council.

(†) The information as to the number of hours was given to the Medical Officer of Health by the Doctor who attended the case. Since the date of the Report, however, it has been found that S. called at the Doctor's Surgery about 60 hours before his death, and then saw the Assistant, who gave him a prescription to be made up.

"WHITEHAVEN, 25*th June,* 1914.

GENTLEMEN,

"I am pleased to be able to state that since my report of 28th May no case of either Typhus or Enteric Fever has been notified in the Borough.

"M.R., aged 50, mentioned in that report as having been admitted to hospital on 22nd May, died on 29th May.

S.G. was discharged from hospital on 13th June.

"The other three patients, Mrs. A.W., J.H.F., and J.H. are still in hospital, but convalescent.

"Subsequently to my last report, the Local Government Board wrote requesting that I should make a report on the outbreak to the Council, and that the Board should be furnished with a copy of my report.

"It will of course be right to send the Board a copy of my report of 28th May, but, as certain details which had previously been known to the Street and Sanitary Committee are not specially referred to in it, I now submit the following additional particulars for the information of the Board who have not before been made acquainted with them, as well as some further remarks on the outbreak as a whole, and the proceedings taken to check the spread of the disease, with which members of the Street and Sanitary Committee are already familiar.

"It must be remembered that J.S., of whom I speak as the first case of Typhus Fever, was notified as Enteric Fever. Disinfection by sulphur fumigation was carried out in the way usual in such cases, St. Bede's disinfecting blocks were supplied, and as the house was an extremely filthy one the Sanitary Inspector suggested to the landlord the lime washing of the bed-room that S. had occupied. This was done, and frequent visits were paid to endeavour to secure a degree of cleanliness. As Enteric Fever is much more likely to be spread by infection in the case of dirty persons than amongst those of cleanly habits, enquiries were made as to the people who had visited the house, and these were kept under observation.

" M.H., who had lime washed S's room, became ill, and was notified as Enteric Fever on the 26th March, and removed to hospital the same day. It is noticeable that S.G., residing at Fidler's Court, Back Ginn's, in quite a different part of the town, was notified on the same day as M.H. as suffering from Enteric Fever, and removed to hospital. Both these patients proved to have Typhus Fever. The most careful enquiry, however, failed to show any connection in the case of S.G. with H., S., or the neighbourhood in which either lived. Her house was clean and well-kept with the exception of the children's bed-room which was dirty. There was none of the conditions with which Typhus is commonly associated, and no overcrowding. Her contacts were kept under observation, but no further case occurred amongst them.

" Mrs. D., who lived in College Arch, near to S., and who had been visiting him and laid out his body after death, became ill about the same time as H., but two doctors who visited her did not consider her case one of infectious or notifiable disease. She died, as stated in my previous report, on 3rd April, her death being certified as due to " Bright's disease, uræmic poisoning, coma." Nevertheless, in view of the grave nature of Typhus Fever, and the fact that H. had certainly had Typhus and passed his crisis on the day of her death, I thought it advisable to take all possible precautions. I at once visited the house, took the names and addresses of all who were then present, and made enquiries as to others who had been visiting the house These attentions on my part were somewhat resented because her case had not been diagnosed and certified as " Fever " of any kind, and it is characteristic of the difficulties one meets with, that after all, although I got the name and address of the woman who prepared the body for burial, I failed to get the name of S.G., residing in another part of the town, 88 Middle Row, Newhouses, who had given some assistance in laying out the body.

" On 3rd May, S.G. was notified as suffering from Enteric Fever. She was removed to hospital, and proved to have Typhus. It was only after this that I elicited the information that she had assisted at Mrs. D's in the way I have mentioned, which was at first denied.

" As stated in my previous report, J.H.F., A,W., and M.R., contacts of Mrs. G., were removed to hospital on 22nd May.

" J.H., admitted to hospital on 27th May, had been suffering from Pneumonia as well as Typhus, and was well advanced on admission. He lived at Mountain View, well removed from any of the other cases, in an excellent house in an elevated and admirable situation. In my last report, made the day after his admission to hospital, I said his connection with other cases could not be traced. I have since made most careful investigation, but can trace no such connection. There have, therefore, been seven cases of Typhus Fever with one death, and two deaths of patients who were not known to have the disease, but who died under circumstances which suggest that they probably sufiered from Typhus. This is what usually occurs in outbreaks of Typhus Fever. The earliest cases are seldom diagnosed, but are supposed to be Enteric Fever, Pneumonia, or some other affection. It seems to me that the difficulty of diagnosis is due not only to the fact that the doctor is not on the look out for it in the absence of an epidemic, or to the fact that Pneumonia for instance is a frequent complication, but to the fact that the earliest cases do not in reality present the characteristic symptoms in the same definite form as do the later cases. Typhus is the disease which above all other specific infectious diseases presents the appearance of arising *de novo*. It is quite possible the microbe to which it is due may be able to live continuously outside the body and attack the human system only when conditions are favourable. May it not be then that on its first introduction it produces somewhat anomalous or ill-defined clinical features, and that it is only succeeding cases caused by personal infection which present the marked characteristics of Typhus seen during the course of an epidemic ? This would be quite in harmony with known pathological facts.

" In all seven cases the rooms the patients had occupied were disinfected by sulphur fumigation by the Sanitary Inspector immediately on the removal of the patient to hospital. Clothes, bedding and other articles liable to have been infected were steeped in solution of St. Bede disinfectant, which was also used for general cleaning purposes in the infected houses. Free ventilation by opening all doors and windows was insisted upon after the sulphur fumigation.

"The house in which Mrs. D. died was also disinfected as thoroughly as though her case had been known to be one of Typhus.

"In all cases every effort was made to obtain information as to contacts. Enquiries were made by the Sanitary Inspector and myself at the homes of the patients and in the neighbourhood. I also arranged that all persons making enquiries, either by telephone or otherwise, as to the progress of patients in hospital should be asked their name and address before any information was given, and in this way several contacts were discovered who would otherwise have escaped notice. The homes of all known contacts were frequently visited unless in other ways it was ascertained that they were still at work or going about as usual.

I am, Gentlemen,

Yours obediently,

J. B. Fisher,

Medical Officer of Health.

To the Street and Sanitary Committee
of the Whitehaven Town Council."

ENTERIC FEVER.

60 cases were notified, an increase of 20 on the previous year.

Only in the Borough of Workington did this disease assume the proportions of an epidemic, and the following report was submitted by Dr. Thomson, the Medical Officer of Health, on the outbreak :—

" TOWN HALL,
WORKINGTON,
19*th October,* 1913.

To the Chairman and Members of the Street and Sanitary Committee.

GENTLEMEN,

" The preparation of this report on the small outburst of Enteric Fever we have just experienced in Workington is necessary, not only in virtue of the fact that I report monthly to you on the health of the Borough, but also because I have received a note from the Local Government Board to the effect that some information of the subject should be forwarded to Whitehall soon.

" We have now passed through five days without any more cases, and I trust that the end of this outburst has been reached. For eight or ten days yet we must remain expectant, as during that time any who were in contact with our latest cases may be incubating the disease.

Yours obediently,
CHARLES S. THOMSON,
Medical Officer of Health.

15*th October,* 1914.

To the Chairman and Members of the Street and Sanitary Committee.

GENTLEMEN,

" On September 30th, 1914, I was asked by a medical colleague to visit and see a family, the S's, at 29 Henry Street, on the Marsh Side, and on the same day to visit a lad W, at 4 Morley Street. At 29 Henry Street, I found Robert S., age 23, dressed and standing in the kitchen, and Joseph S., aged 4 years, dressed and lying wrapped up in blankets, on a wooden bench in the kitchen. Both looked ill, presenting that facies which we see in exhaustive febrile conditions. Both had been ill ten to fourteen days, and as their temperatures were still elevated, there were grounds, in my colleague's opinion, for suspecting Typhoid Fever. I concurred, and it was agreed that specimens of blood should be sent to the Corporation's Bacteriologist in London for a Widal test. Meanwhile, I enquired and found that Hannah S., aged 4 years, had been ill at home, between the 7th and 14th September, with sickness and diarrhœa, but that no medical advice had been sought—the mother giving a dose of castor oil. While ill, the child slept with her mother at night in the bedroom, and during the day reclined on the couch in the kitchen. Again, Isabella S., aged 13 years. had complained of feeling tired and weary about the 14th September. She continued to attend school until the 23rd September, when she was sent home by the Headmaster of Lawrence Street Schools. Joseph S., mentioned above, had been sent home on the 16th, complaining of illness. There had been no Enteric in the town since 8th July, the case prior to that being on May 17th. My custom is that where a suspicious case crops up, to await the result of a Widal test before removing to Hospital, but when a few cases are notified, to prepare to relax this rule, taking suspicious cases into Hospital first, then receiving the Widal results later.

" It would be unwise where an epidemic is threatened, to hold slavishly to an otherwise good rule, inasmuch as the twenty-four hours' delay—before the Bacteriologist's report comes in—is always so much time during which contacts might be affected by the patient. At this stage of our outbreak (Thursday, the 15th October), I have every reason to be glad that we relaxed our usual rule.

" On October 2nd, the report came in—Widal positive—so we removed to Ellerbeck Hospital :—Robert S., aged 23 ; Joseph S., aged 11 ; Isabel S., aged 13 ; and Hannah S., aged 4 years. Though apparently well, I removed Hannah S. in order to have a Widal taken at the Hospital, to satisfy myself as to whether she had really been the first case in the house, and to give such drugs as are believed to be efficacious in sterilising the gall-bladder, which is an important haunt of the Typhoid germ, so possibly preventing a sufferer from acting as a " carrier " for many years.

" I inoculated with anti-Typhoid vaccine (prophylactic)—(*a*) Mrs. S. ; (*b*) Sarah, aged 19, who had been in farm service at Mr. T.'s, N. Road, M., for five months and happened to be home for a short visit, arriving just after the cases were removed; (*c*) Thomas S., aged 14; (*d*) Nellie S., aged 7. The father, who works at Derwent Works, I hope to secure quickly and inoculate. Those inoculated were all well and have had no history of recent illness.

"The three brothers, Thomas, William and Robert, work in the Sleeper Key Department at Derwent Works. About September 1st, Thomas S. gathered blackberries and watercress from a beck opposite Salterbeck Farm. The exact site was pointed out to Mr. M. Johnstone, your Assistant Sanitary Inspector, and on Saturday afternoon, the 10th October, we made a detailed examination of this place.

"It was suspected by the mother that Hannah S. had eaten some of the watercress unwashed. The watercress had been removed from the bed of a beck or ditch running at the side of a hedge separating one field from another. Twenty yards above this beck and in ground sloping down and so draining into the beck, there is a fairly substantial site of a disused ashbank. One hundred yards higher there is a dumping ground for offal, covered with house refuse. The offal is dumped from the Corporation slaughter-house. This also drains down to the beck. For a distance of about a mile-and-a-half we traced the beck on rising ground, which obviously drained down to the place at which the watercress had been gathered. Eventually we reached Moor Close and Laverock Hall farms. Whilst it is not yet definitely certain whether a water-closet at Moor Close Farm drains direct into a stone culvert which eventually leads into the beck, it is clear that all the way along there is ample pollution from cow droppings, &c. In wet weather the watercress must be covered with polluted water. We took a sample of watercress at the spot from which the S. family had obtained their supply, and sent this off to the Bacteriologist for examination. We are now awaiting a reply. The watercress was packed in a sterilised jar.

Number 29 Henry Street, is one of a group of houses called Peile's Yard. This was purchased recently, and at that time the owner asked me to see the property and state what alterations were required. I wrote him on the 29th April, pointing out that the properties should be made into " through " houses, and the ground floors reconstructed so as to have a smooth and even surface. All windows were to be easily opened, therefore sliding sashes were necessary. Earthenware sinks and waste pipes discharging into gullies and supply of water laid thereto were advised. It was recommended that each house should have separate w.c. accommodation, and that the yard area should be covered with bituminous material.

" The alterations made to date in Peile's Yard consist in the conversion of two houses into one through dwelling, the reconstruction of the drainage with the abolition of iron trough closets and the substitution of separate w.c. basins, traps, and flushing cisterns. It will be seen, therefore, that a great deal remains to be done. The house at 29 Henry Street consists of a kitchen, bedroom and one attic. There is no through ventilation, and the house is overcrowded and dirty. I beg, therefore, on the various grounds alluded to, to make Representations under the Housing and Town Planning Act for Closing Orders for the houses comprising Peile's Yard.

" In front of No. 29 Henry Street, there is a bottom outlet gully. Complaints were made on the occasion of my visit as to a smell of sewer gas. A main sewer passes along Henry Street *en route* to its outlet, and as the town of Workington must contain many " carriers," it is a tenable theory that Hannah S. may have inhaled Typhoid germs from sewer air emanating from the gully, while playing at the edge of the footway. The recent lack of rain certainly adds to the possibility of air currents in the sewers carrying germs to any outlet.

" We have still to hear the report on the watercress. We can be certain, all the same, that Hannah S. was the initial case in the S. household, and that she infected the others. I am afraid that the standard of cleanliness, the lack of disinfectants, and the absence of any attempt at isolation in this house made infection of the others an easy matter.

" The next case I saw on September 30th was Joseph W., aged 16 years, at 4 Morley Street. The family consists of parents and six children living in two bedrooms and one living room—overcrowding obviously. The father works at the Derwent Sleeper Mill, and Joseph, the patient, at the Moss Bay Fish Plate Mill. The remainder are at school (now excluded, of course). Joseph, the patient, had been ill between September 13th and 20th, but kept on at work until 5 p.m. on Monday, the 21st. The doctor was called in on the 24th, and saw him daily. The father, T.W., works alongside of Robert S., of 29 Henry Street, and was off work on the 21st and 22nd September with diarrhœa and pains in the bowels. Whilst I have reasons for believing that T.W., the father, of 4 Morley Street, was off ill on the 21st and 22nd September with some other cause than mild Typhoid, I have taken a specimen of blood for examination, to make sure. It was ascertained that Joseph W. had eaten some mussels on the 12th September, obtained from a certain vendor on Hagg Hill. In view of the number of cases which had partaken of mussels obtained about the same date and from the same vendor, I suggest that this fact be borne in mind.

" Whilst a great number of citizens and their families gain their livelihood at the Moss Bay and Derwent Works, I thought it wisest to secure lists from the Workington Iron & Steel Co., Ltd., of the names and addresses of all men employed at the Works who had been off ill since August 1st for more than one day from any other cause other than accident. These lists were most kindly supplied to me by the General Manager, J. V. Ellis, Esq. At present this list is being carefully sifted, and especial attention is being paid to an absence of some five days upwards, which might suggest a possible attack of "influenza." This inquiry must take a little time. In any probable case a blood sample will be examined.

" Let me say, at this stage, that as Typhoid Fever is frequently due to " carrier " cases, I have had lists drawn up of all cases of Typhoid Fever occurring within the Borough since the commencement of the epidemic in 1907. Certain enquiries are being made of a number of each of these cases daily. It is too early yet to speak definitely, but I have grounds for believing that the " carrier " question will not bulk largely in the present little explosive outburst.

" Realising now the possibility of an outbreak on a scale of some magnitude, I wrote to the medical men in

Workington and Harrington, stating the facts, reminding them that the Corporation would gladly pay for Widal examinations, as hitherto, asking if they would kindly keep me informed by telephone or message of any cases, and to watch especially any cases of Diarrhœa, Influenza, &c.

" The cordial co-operation which has prevailed between my friends in the medical profession and myself has now, as hitherto, been a source of much pleasure to me and help to the cause of Public Health in the town.

" On October 8th, a medical man informed me that he had sent off seven blood specimens for examination. I resolved to remove all those cases in the morning. By that time, Widal reports came in—all positive. Another case was taken in before the Widal test came—this proved to be positive as well. A scrutiny of the addresses made me suspect that as the cases were all scattered, some infecting influence, other than contact, must be at work. True, one of the eight fresh cases, Rachel G., 22 years, came from 33 Henry Street, next door but one to the S. family, at 29 Henry Street. In entering upon a quest such as I was now faced with, one has to take a large number of factors into consideration. One of these is the question of seasonable foods. At this time, shell fish may be said to be especially " in season." More than this could not be inferred—no conclusion must be jumped to. In the recital of case after case now given, it will be seen early that around the consumption of mussels at or near a particular date, evidence grew surely but steadily. I will now enter upon a short summary of the facts concerning each case in this necessarily hastily-written Interim Report.

" Rachel G., aged 22 years, 33 Henry Street (Peile's Yard group), was notified on October 9th. She had been ill with dizziness, headaches and faintness since September 30th. She had been visited daily since October 1st by her medical adviser, and was notified on the 9th instant. I saw her and advised immediate removal. The household consisted of (*a*) Jonathan G., age 31, her husband, a stevedore at the harbour. He had been off work for over three months and privation had prevailed in the home ; (*b*) Jonathan G., junior, aged 2 years ;

(*c*) Mary Jane G., aged 10 months. I was informed that Jonathan, junr., had been ill about the 18th September with diarrhœa (that is 11 days after the illness of Hannah S., of No. 29). Mary Jane G. seemed feverish and ill, so I removed both children to Hospital as well as the parents. Widals confirmed my action, both proving to be suffering from Typhoid Fever.

" On the day of my visit to 33 Henry Street, I found Mrs. B., of 10 Bromley Street, and Charlotte B., aged 15 years, in the G.'s house. Mrs. B. is the mother of both Mrs. G. and Charlotte B. Mrs. B. and Charlotte B. had been visiting daily at 33 Henry Street, since the mother, Mrs. G., took ill on September 30th. Mrs. B. attended to her ailing daughter, Mrs. G., and looked after the cooking, &c., whilst Charlotte B. more particularly nursed the children (while they were ill, though unsuspected). At nights, Mrs. B. and Charlotte B. went home to sleep at 10 Bromley Street. I resolved to call next day and inoculate Mrs B, and Charlotte B. and any others in that house. Next day, at 10 Bromley Street, on going to inoculate the household, I formed the impression that Charlotte was sickening with the disease. She was at once removed to Ellerbeck, and is now sharply ill with the disease. At 10 Bromley Street I inoculated Mrs. B., mentioned already, and her daughter-in-law, Mrs. B., junr. I ascertained that a son and son-in-law were at Camp in the 5th Border Regiment at Barrow-in-Furness, so I wrote the Medical Officer of the Camp direct. These two soldiers had left 10 Bromley Street on the 8th of the month, so that there was a chance of infection by contact. In regard to the G.'s, at No. 33 Henry Street, I can only say that the dirty condition of the house was only inferior to the filthy state of the people themselves—much difficulty being encountered in making them clean at the Hospital. On the 9th October, the next case investigated was Thomas B., 6 Southey Street, Insurance Agent, aged 34. He does Salvation Army work in his spare time. The house was sweet and clean, and the family consisted of : (*a*) Mrs. B., 33 years ; (*b*) Horace B., 12 ; (*c*) Edna B., 10 ; (*d*) Emma B., 9 ; (*e*) Edith B., 8 ; (*f*) Elizabeth, 5 ; and (*g*) Flora, 8 months.

" Thomas B. took ill on 22nd September, and his doctor was called in on October 2nd. The house consisted of two bedrooms kitchen and scullery—a tendency to overcrowding here. About 18 days before taking ill, *i.e.,* on 4th September, he had eaten mussels procured from a vendor on Hagg Hill. His milk supply came from C., Station Road. The milk supply in the house is kept covered up in the pantry. The case was at once removed and the whole family inoculated. (Where contacts were inoculated, the Health Visitor called next day and took temperatures and supervised. In hardly a single case was there a symptom to be found.)

" William C.F., 11 James Street, age 23, a collier at Siddick, took ill on 27th September and was notified on the 9th October. He had eaten mussels and oysters on the 12th September in company with J.H., now at the Camp of the 4th Border Regt., in the 4th Company, at Cotford St. Mary's, Salisbury, Wiltshire. The mussels were procured from the same vendor as in the other cases. W.C.F. also ate bananas, obtained from J.'s and T.'s, two different fruiterers (the latter of whom was notified on the 9th—vide below). There are nine people in the F. household, which consists of two living and three bedrooms.

" I notified the Chief Medical Officer of the Camp at Cotford St. Mary's of all the facts.

" Nellie J., 110 Senhouse Street, age 12 years, schoolgirl, sickened on September 30th and was notified on the 9th October. House contains two living and four sleeping rooms, and there are five people in the house. Robert D., 16 Blackburn Street, age 7, ate mussels and covens with Nellie J., on the 26th September. On the 27th Robert had diarrhœa, but was better again soon. (Unfortunately I had inoculated Robert D. as a contact before hearing of the attack of diarrhœa, so that it was useless taking a Widal after inoculating him). The father of Nellie J. has a small sweet shop at 110 Senhouse Street, and a stall on Hagg Hill on Saturday nights. He works at J.'s sweet shop, F. Street, during the week. Family inoculated. A brother, Wm. J., is in the 5th Border Regiment, but has not been home for some time. I wrote to the Chief Medical Officer at the Camp at Barrow *re* Wm. J. I have heard indirectly that he is in the Hospital at Barrow, presumably under observation, but I cannot say for certain.

" A.T., age 44 years, 3 Dean Street, fruiterer, became ill on 2nd October, and was notified on the 9th instant. He is a wholesale fruiterer, and obtained his milk from C. Station Road. He is exceedingly fond of mussels. He ate some watercress obtained from " an old woman who attends Whitehaven market and comes from the Gosforth region, some twelve miles from Whitehaven." I communicated with Dr. Fisher, of Whitehaven, who quickly investigated matters, finding that the vendor of watercress came from Corney, but that there was no evidence to cast suspicion on the source of the watercress. A.T. eats fruit in moderation. His household consists of wife, daughter and maid, and there are three living rooms and five sleeping rooms. Mr. T. visits Covent Garden weekly in connection with his business, and he has a fruit shed at the Low Station, Workington. One of his men is off ill with pneumonia, and this is being investigated. Family all inoculated.

" John C., 17 Senhouse Street, age 20 years, collier at Clifton, took ill on 23rd September and was notified on 9th October. (Colliery Manager written to and symptoms of Typhoid described). He got milk from C., Station Road. Let me diverge for a moment to mention C., of Station Road, as his name crops up in this narrative as the milk purveyor to the families of four patients. He sells milk over the counter and carries it round the town. No history of illness in his family. He gets his milk as follows :—Every day, except Sunday, 30 gallons are delivered by T.N., of B. Hall. On Sunday he gets by rail 15 gallons from G., of P., near A., and also 15 gallons from H., of B. All three sources of supply are in the County. I wrote Dr. Morison, County Medical Officer of Health, and also Dr. Mc.Leish, Medical Officer of Health of the Cockermouth Rural District, asking if they would kindly enquire at the farms as to the nature of the dairies, drainage, sickness in house, water supply, &c. Dr. Morison is kindly making enquiries, and Dr. Mc.Leish has written to the effect that all he can complain of at T.N.'s is that the floors were dirty—all else being negative.

" I visited the Low Station last Sunday morning and examined the milk churns sent to C., of Station Road. They were good of their class, in excellent repair, though possessing those crudely conceived lids so prevalent and which may readily admit dirt. This type of lid has been condemned by Macewen, in the Public Milk Supply.

" Whilst awaiting Dr. Morison's report on his visit to the other farm, I am fairly sanguine that C.'s milk is not to blame for this outbreak. Had it been so, then there must have been far more cases. I did not ask him for a list of his customers, as only four obtained their milk from him. Furthermore, only one member of each family became ill, and if C.'s milk were to blame, surely more would have fallen victims within the same household.

" To return to the patient, John C., under consideration. He is fond of fish and chips, watercress, fruit, ærated waters, and is positive that he had eaten *no* shellfish. I have made sure of that point. He carries water from home in a bottle with him to the Colliery, some three miles away. Concerning the watercress, he obtained it from H., of Senhouse Street. Mr. H. would not at first divulge the source, but eventually gave it as being at M.H. Farm, High Harrington and that the supply given to John C. had been gathered on September 13th. Mr M. Johnstone, Assistant Sanitary Inspector, gathered some from the same site,and this was packed in a sterilised vessel and sent off to London for examination. The watercress brook is some 350 yards from the farm buildings, manure stead and dwelling house (pail closet). The land surrounding the buildings, &c., has a pronounced gradient, and during heavy rains the surface drainage from the farmyard, &c., will flow into the brook. About five weeks ago, John C., had served on a fruit stall, J's, at Hagg Hill, but this stall has been closed now five weeks. John C. ate pears and plums. His brother, Robert C., aged 22 years, enlisted on the 29th September, and is at present with the 12th Platoon, 3rd Company, 5th Battalion Borders, at Cotford St. Mary's. I have written to the Chief Medical Officer at the Camp, giving particulars. It is of interest to note that of the twenty-one cases of Typhoid Fever in Ellerbeck Hospital, eight cases can be traced as contacts from the original infector, Hannah S., of 29 Henry Street. This leaves twelve to be accounted for. Of the twelve cases, nine definitely were associated with the consumption of mussels. Of the remaining three, C., M. and W., it is of great importance to note that a negative reply—as to a diagnosis of Typhoid—was returned by the Bacteriologist in the cases of M. and W. I am now satisfied that M. has not got Typhoid Fever, and W.'s case is doubtful. This leaves C., returned as Widal positive, as the only one of the twenty-one cases as to the cause of whose illness I am not yet prepared to state definitely. The watercress he ate, and now under examination, may be of assistance in aiding us to form an opinion.

"William J., 17 North Watts Street, age 12, took ill on the 26th September and was notified on the 9th October. Milk supply from C., of Station Road. He ate mussels on the 26th September and became ill on the same day. It was not until the 9th October that he was notified. The incubation period of Typhoid Fever ranges round about twelve days, so that at first we would say that if he took ill on the same day as that on which he consumed mussels, we must look for some other source of infection. Such an argument would be wrong and misleading. If these mussels were contaminated by sewage infected by the Bacillus Typhosus, then there must be other forms of germs present from the sewage, such as the Bacillus Coli Communis, &c., and these would quickly cause signs of illness in anyone prior to the manifestations of infection with the Bacillus Typhosus.

"The J. family at 17 North Watts Street, refused to be inoculated. The father, a workman at R.'s, has views on the subject of vaccination. A son wanted a written guarantee in the event of illness, and so on. This family are under close surveillance, lest secondary cases should be forthcoming.

"S.M., 60 John Street, age 17, barber, was notified on the 9th October, his illness commencing suddenly on the 5th October. The history of this case is purely negative—no mussels, &c. Clinically, his case has not resembled Typhoid Fever.

"From the 9th until the 12th October no notifications were received. On the 12th, two notifications came in.

"Jonathan G., age 31, stevedore, of 33 Henry Street, took ill on the 11th October and so followed his wife and family to the Hospital on the 12th. No history of mussels or any foodstuffs—a pure case of contact.

" John C., 7 Brayton Street, was notified on the 12th October, after feeling ill since October 1st. He works at the Rail Bank at the Derwent Works. He had eaten mussels like the others, from the same place—Hagg Hill.

" Charlotte B., 15 years, 10 Bromley Street, was found by me to be sickening on the 12th (and not the 10th as stated previously). Therefore, when I saw her nursing the infected children of 33 Henry Street, on the 9th, she had probably been incubating the disease for some nine days at that time. Charlotte B.'s mother, who had also nursed at 33 Henry Street, a married daughter, Mrs. R., residing also at 10 Bromley Street, were all inoculated. I ascertained that the husbands of both Mrs. R. and Mrs. B. were both with the 5th Border Regiment, at Barrow, and I wrote to the Medical Officer of the Camp. He has replied stating that he has inoculated the two men and proposes to inoculate the Battalion.

" On the 13th October, three men were removed to Hospital.

" T.M., age 19, Station Road, took ill about September 30th, and I heard on the 12th October that he was ill. His medical adviser agreed that the case was highly suspicious and that removal to Hospital seemed advisable. A Widal taken later proved the case. History of mussel eating—all else proving negative.

" J.B., 7 Lonsdale Street, had diarrhœa from 15th to 18th September. He continued to work until the 7th. He ate mussels on 12th September, being the eighth of the Typhoid cases who had consumed mussels about that time and from the same source of supply.

" John H.W., age 26, joiner on the London and North Western Railway, 22 Yeowartville, took ill on the 9th October, and was seen by me in consultation with his doctor on the 13th. His symptoms pointed to Enteric Fever. A Widal was made but proved negative. This was of little help as he had only been ill, so he alleged, four days. He was removed to Hospital for reasons of general safety on 14th October. This evening, October

19th, I am of opinion that his illness is caused by one of the group of paratyphoid bacilli—his is not a true Bacillus Typhosus case. The household consists of wife, age 24, and child, age 2. There is one living and three bedrooms. The history is entirely negative.

" These, then, make up the list of cases. Before discussing the cause, let me state briefly what has been done to prevent the spread of the disease.

" All cases were promptly removed, immediately on receipt of notification. The majority were removed before the actual written notification arrived, thus showing that telephone messages, &c., were kindly sent by my medical colleagues. Immediate enquiry was undertaken so as to elicit all information as to the patients' movements, food, &c., during the preceding three weeks. Kindly observe the extent to which enquiries were pushed, as it will serve to dispel any idea that we seized on mussels and excluded any other avenue of possibility as to the source of infection. (Here followed a copy of enquiry sheet.)

REMARKS.

" As this Report must be in the hands of the Committee on Wednesday, the 21st instant, I propose to condense the information I have now to give.

" As each case occurred, all bedding, clothing, &c., was removed for steam disinfection. The walls and ceilings of rooms, landings and staircases were sprayed with Formalin, and the flushing of all drains and sanitary appliances with fluid disinfectant was carried out. Where practicable, the main sewers were flushed with water from watercarts or from water main hydrants—400 gallons used in each case. Eight library books were destroyed which had been in infected houses from date of probable onset to date of removal. Let me diverge here to illustrate the difficulties one has to face in preventing the spread of infection. Between the period of my visit to see a patient and the removal to Hospital, a Mrs. B. removed some articles of clothing from 33 Henry Street, to a wash-house at the rear of 37 Henry Street. The disinfecting staff, on calling at 33 Henry Street, asked that all clothing should be given up. The above clothing, surreptitiously removed, was eventually discovered and removed for disinfection and the whole of the wash-house washed down with strong disinfectant. I suggest that the case of Mrs. B. be considered by the Sanitary Committee.

" *Drainage.*—The drains at 4 Morley Street, 110 Senhouse Street, 17 Senhouse Street, 7 Lonsdale Street, 7 Brayton Street, 11 James Street, are all in good repair. The drains at 29 and 33 Henry Street, were relaid in July—August, 1914. The bottom outlet gully mentioned in the case of the S. family at 29 Henry Street, was immediately changed for a properly constructed one. It is intended that tests shall be applied to the drains at Nos. 60 John Street, 17 North Watts Street, 17 Station Road, 6 Southey Street, and 22 Yeowartville.

" *Children at School.*—Children from infected houses were excluded for fourteen days from date of notification.

" *Closing Premises.*—Two business premises were closed for disinfection and cleansing : (*a*) Confectionery to the value of £5 was destroyed, and the shop and all contents sprayed with Formalin. The business was closed for ten days, as the mother of the patient had nursed him for fourteen days while attending to business. (*b*) Some stock, principally confectionery, was destroyed. The business was closed for five days for cleansing, &c., of shop and bakehouse. Bakehouse was lime-washed, and shop, sick room, &c., sprayed with Formalin.

" In each case the people were quite pleased to follow advice *re* closure, etc., as they soon foresaw that radical measures would have a good moral effect on their customers, so in the end repaying them.

CAUSES OF THE OUTBREAK.

" I have already explained that a number of the cases were caused by contact from the first case—Hannah S., of 29 Henry Street—and that, in my opinion, she developed the disease either from infection carried through the bottom outlet gully, or from watercress—concerning which the examination has not yet been completed.

" We are faced then with the fact that two sets of cases came on us about the same time. In the first, we had contacts with their intervals between each. In the second, we had a small explosive outburst of cases having no relation at all to the first. What, then, was the cause of the outburst in the second group of cases ? Faced with the answers to the questions given on our enquiry forms, the evidence pointed strongly to mussels, with possibilities as regards milk, and in one or two cases, watercress. The evidence in regard to milk, though not complete, pending Dr. Morison's enquiries, seems to be negative. Watercress reports are not yet to hand, but I do not expect much information there. In regard to mussels, the report of the Bacteriologist cannot be in our hands for a week yet, but from the information obtained, added to that given below, I am satisfied that mussels are almost entirely to blame. As the evidence pointed to mussels, I visited the vendor at Hagg Hill. His is a business of repute. I was courteously received. There had been no illness recently or within a period of years in the family. There was nothing locally to point out to any cause of infection. They had always procured the mussels from the same trader, Mr. J.B., of Overton, near Morecambe. On October 13th, I wrote Dr. Sergeant, the M.O.H. of the County Palatine of Lancaster, stating the facts, and asking if he would kindly make enquiries. He most courteously offered to do so. On the 15th, he again wrote, enclosing a report on an inspection of the mussel-beds made by Mr. Eginton, Chief Sanitary Inspector of the County, on the 14th at Overton. Dr. Sergeant also enclosed a report for my perusal which he made in 1902 ' with respect to the pollution of the River Lune and the possibility of contamination of the Shell-fish beds referred to.' Taking Mr. Eginton's report first he says :—

" ' The mussels are obtained from a mussel-bed (Bazil Point Weir), River Lune, at a point marked X on a plan attached to enclosed report, about six miles from Lancaster. The shell-fish are taken from the water by means of a long wooden rake, which is dragged some distance along the bed of the river, bringing up mussels, mud, stones, &c. It was the practice until about two weeks back to despatch the fish the same day to the various customers from Glasson Dock Station, on the south side of the river.

" ' The procedure now adopted is somewhat different. Acting upon the suggestion of an official from the Fisheries Board, the mussels, after they are taken from the river, are cleaned and deposited on the sands to ærate. Here they remain for three days, and are washed by the water from the high tides. The mussels are then sent off from Glasson Dock Station in the usual way.

SAMPLES.

" ' I obtained the following samples of mussels which were posted the same evening to Dr. Burnett, 10 Bedford Square, London :—

(i.) From bed of river—depth of water about 8 feet. High tide 7-30 p.m.
Time sample taken 12 noon.

(ii.) From sands. After being exposed to air for three days and to washings from tides for a similar period.
Time taken, 12-30 p.m.

(iii.) Bank of river direct. (Not treated as sample No. 2).
Time taken, 12-40 p.m.

SEWAGE.

" ' In addition to the crude sewage entering the River Lune from Lancaster, I understand that the districts of Glasson, Overton and Sunderland—each on the conservancy system—with a combined population of about 450 people, also discharge into this river.'

" The above report proves three things :—

(1) That the mussels were not cleansed and deposited on the sands to ærate before being consumed by those who became ill in Workington.

(2) That an official of the Fisheries Board must have had some reason for his suggestion as to the manner of treating the mussels ere they were despatched by the trader.

(3) That the River Lune is polluted with sewage.

" In regard to Dr. Sergeant's report on the pollution of the River Lune, this consists of twelve printed pages, I shall merely give one or two points from this. Complaints were made to the County Council in 1902 as to the polluted state of the water in the River Lune, below Skerton Weir, by Conservators of the Rivers Lune, Wyre, Keer, and Cocker Fishery Board, and by persons engaged in the Fishing industry, residing at Bazil Point and Sunderland Point, in the Township of Overton. It was alleged, amongst other things, that important mussel-beds at Bazil Point Weir might become so seriously contaminated with sewage as to cease to be the means of livelihood relied on by the fishermen in the winter season. Dr. Sergeant investigated, and wrote that crude sewage passed into the River Lune from Lancaster, Conder Green, Glasson, through various outlets. The nearest of the Lancaster sewage outlets to Bazil Point Weir is that of The Lancaster Infectious Disease Hospital. The sewage passes untreated from the Hospital and it is of interest to note that a case (one at least) of Enteric occurred in Lancaster some three months ago. Dr. Sergeant says that " it is quite reasonable to assume that after heavy rains much of this material (slimy mud formed from sewage) will be washed down the river, possibly to be deposited on the mussel-beds at the estuary . . . . On such occasions there is ample evidence to show that fish are choked and driven further out to sea.' Bacteriologists made tests, and as a result one report read 'that the mussels on . . . . and at Bazil Point (February 9th, 1904), are polluted by sewage matters, but that the danger of pollution is not excessive.' Professor Delepine states that the results of his investigations point to considerable pollution of the River Lune as far as Bazil Point Wear and Crook Skear.

" Dr. Sergeant finally states in his report 'I fully believe that the present system of introducing large volumes of crude sewage into the river may, on sanitary grounds, be considered offensive, avoidable and likely to render harmful the shellfish taken into the estuarial waters.'

" We have to await the results of the investigation being made into the samples of mussels sent by Mr. Eginton, at my request, for bacteriological examination. These samples may or may not be found to be polluted.

Gross pollution would be necessary to infect all the mussels, and the samples, though skilfully and fairly selected may not be found to be infected. Whether or no, the evidence as set forth in this report, is, in my opinion, conclusive that the outburst of cases was due to the consumption of mussels infected by the Bacillus Typhosus.

" In conclusion, I have to express my grateful thanks to Dr. Sergeant for his kind and prompt assistance, also to Dr. Morison and Dr. Mc.Leish. Mr. M. Johnstone, your Assistant Sanitary Inspector, I cannot thank sufficiently. From start to finish he has done excellent work at a time when determination and much ' overtime' were necessary.

Yours obediently,
Charles S. Thomson,
Medical Officer of Health.

" When time permits I will discuss the means which were taken to safeguard the troops, the use of Anti-Typhoid Inoculation, both prophylactic and curative, and the warnings advertised in the public press."

PUERPERAL FEVER.

Eleven cases were notified, against 7 the previous year, 8 in Urban and 3 in Rural districts. (See Table II.).

Seven deaths are registered as due to Puerperal Fever.

Workington Borough	2
Penrith Urban	3
Brampton Rural	1
Penrith Rural	1

The fatal case in the Penrith Rural district does not appear to have been notified.

MEASLES.

Measles, during 1914, was not very prevalent. It was found necessary to close a few schools in the South-west of the County owing to outbreaks.

Only three deaths were recorded as due to Measles.

WHOOPING COUGH.

Fifty-seven deaths were registered as due to Whooping Cough, against 15 the previous year. 41 in Urban and 16 in Rural districts. The disease was fatally prevalent in the Borough of Whitehaven, in the Urban districts of Cockermouth, Egremont and Maryport, and in the Rural districts of Cockermouth and Whitehaven.

DIARRHŒA.

From Diarrhœa and Enteritis 56 deaths were registered, compared with 89 the previous year.

43 of these deaths were of children under one year of age.

Dirt and insanitary conditions favour the spread of epidemic Diarrhœa ; large midden privies, and collections of stable manure are the most favourable breeding places for flies, which contaminate the food of children and infants. It is, therefore, of the utmost importance that these places should be emptied frequently.

ERYSIPELAS.

159 cases were notified, compared with 188 cases the previous year.

Six deaths are registered as due to Erysipelas.

TUBERCULOSIS.

174 deaths were registered as due to Pulmonary Tuberculosis (Consumption), 105 in Urban, and 69 in Rural districts, compared with 258 deaths, 183 in Urban and 75 in Rural districts in 1913.

Note.—Here we must be careful not to be misled by numbers. The difference in numbers between the two years is due mostly to the fact that this year the City of Carlisle is not included.

This gives a death-rate for the Administrative County of 0.8 per 1,000 of population, for the Urban districts of 0.8, and for the Rural districts of 0.7, compared with 0.9, 1.0 and 0.7 respectively the previous year.

In addition to these 174 deaths, there were 62 registered as due to other forms of Tuberculosis, 46 in Urban, 16 in

Rural districts. Compared with the previous year, which were in the County 107, Urban districts 85, Rural districts 22.

Cases of Tuberculosis are not notified as they should be ; frequently an application for Sanatorium Benefit under the Insurance Act is received from a patient whose case has never been notified.

Arranged in the order of their mortality from Pulmonary Tuberculosis, the Urban districts stand thus :—

Egremont	1.7	Maryport	0.6
Millom	1.2	Wigton	0.5
Workington	1.2	Penrith	0.4
Whitehaven	0.9	Holme Cultram	0.2
Arlecdon & Frizington	0.9	Keswick	0.2
Cockermouth	0.8	Harrington	Nil.
Aspatria	0.6		

And the Rural districts thus :—

Brampton	1.2	Cockermouth	0.6
Longtown	0.9	Whitehaven	0.6
Wigton	0.8	Penrith	0.4
Bootle	0.7	Alston	0.3
Carlisle	0.6		

It will be noticed that Egremont, Millom, Workington, Whitehaven and Arlecdon and Frizington of Urban districts, and Brampton and Longtown of Rural districts, have death-rates from Pulmonary Tuberculosis above the average for the whole County.

Arranged in the order of their death-rates from all forms of Tuberculosis (including Pulmonary) the Urban districts stand thus :—

Egremont	2.3	Cockermouth	0.9
Cleator Moor	1.8	Holme Cultram	0.8
Whitehaven	1.6	Maryport	0.7
Millom	1.6	Penrith	0.7
Whitehaven	1.3	Aspatria	0.6
Arlecdon & Frizington	1.3	Harrington	0.4
Wigton	1.3	Keswick	0.2

And the Rural districts thus :—

Longtown	1.4	Cockermouth	0.8
Brampton	1.3	Wigton	0.8
Whitehaven	0.9	Penrith	0.6
Bootle	0.8	Alston	0.3
Carlisle	0.8		

The death-rate from all forms of Tuberculosis is certainly declining, during the last six years the rates have been as follows :—

	1909.	1910.	1911.	1912.	1913.	1914
Urban Districts	1.6	1.7	1.6	1.6	1.5	1.2
Rural Districts	1.1	1.1	0.9	0.9	1.0	0.8
Administ'tive County	1.4	1.4	1.3	1.3	1.3	1.09

When I wrote my last Annual Report, I had every reason to hope that before this present one was due, I would be in a position to inform you that our complete scheme for the treatment of Tuberculosis was in full working order.

These hopes, however, have not been realised, owing to the outbreak of the war. All the preliminary arrangements were made, the medical and nursing arrangements completed, and both doctors and nurses started their duties on 1st September, and it was hoped that by the end of the year everything would be in full working order for the present year. Now, however, all our work has practically been brought to a standstill, owing to all the medical and part of the nursing staff having been accepted for military service. Necessarily there were many preliminaries to settle, but much good work was done in those dispensaries which were already open, viz., at Penrith, Maryport, Whitehaven, Workington and Millom. The expansion and usefulness of the work, which our experience led us to expect, by the opening of more dispensaries at Keswick, Wigton and Aspatria, has been stopped in the meantime. Premises at these last three named places are ready to be opened when the appropriate time arrives. Premises have also been secured for a dispensary at Cockermouth, but are not yet in our possession. No suitable premises have yet been secured in Cleator Moor.

As regards our beds in Blencathra Sanatorium, here, like everywhere else, the alterations and extensions have been delayed owing to the war. At the time of writing this report, however, I am informed that the alterations and extensions are nearing completion, so that before long we can hope for our full complement of beds.

Up to the end of the year all our efforts to secure a site for a TuberculosisHospital failed, but quite recently a suitable site has been obtained, and after all preliminaries have been arranged, we will in due course get this much needed institution. Negotiations are also going on with the Workington Corporation to enable us to build a pavilion for Tuberculosis adjoining their isolation hospital.

The following tables shows the cases treated in 1914 :—

TABLE SHOWING CASES TREATED DURING 1914.

CLASS OF APPLICANT.	Sex.	No. of Applications	No Treatment offered	Withdrawn or refused treatment.	Died before examination	Incomplete.	Hospital.	Dispensary.	Sanatorium Treatment.					Domiciliary Treatment.				
									No.	Imp.	I.S.Q	Worse	Dead	No.	Imp	I.S.Q.	Worse	Dead
Insured Persons ..	Male ..	47	2	1	2	5	3	5	10	8	1	1	—	19	8	5	—	6
	Female	17	1	—	—	2	—	—	4	3	1	—	—	10	3	2	—	5
Dependants over .. 16	Male ..	4	—	—	—	3	—	1	—	—	—	—	—	—	—	—	—	—
	Female	19	—	—	4	—	—	3	1	1	—	—	—	11	4	3	—	4
Dependants under 16	Male ..	22	3	—	—	1	—	7	1	1	—	—	—	10	6	4	—	—
	Female	36	2	1	—	2	1	14	5	5	—	—	—	11	5	2	2	2

TABLE RELATING TO CITY OF CARLISLE UP TO APRIL, 1914.

Class of Applicant,	*Sex.*	*No. of Applications.*	*Sanatorium.*	*Domiciliary.*	*No Treatment.*
Insured Persons ..	Male ..	16	1	9	6
	Female ..	5	—	2	3
Dependants over 16 ..	Male ..	—	—	—	—
	Female ..	3	—	2	1
Dependants under 16 ..	Male ..	11	—	9	2
	Female ..	14	—	13	1

During the year 194 applications for treatment have been received. 49 of these applications belonged to the City of Carlisle, and when, in April, the City became a County Borough, these cases were transferred to that Authority.

Of the 145 cases belonging to the Administrative County who received treatment during the year, there were :—

	Male.	*Female.*
Insured Persons	47	17
Dependants over 16	4	19
,, under 16	22	36
	73	72

Sixty-six were still under treatment at the end of the year. In 8 cases no treatment was offered, two persons withdrew their applications for Sanatorium Benefit, and 6 died before they could be examined.

Of the cases treated, 21 were sent to a Sanatorium, 61 were treated at home, and 31 were treated at the dispensaries, with the following results :—

	Sanatorium Treatment.	*Domiciliary Treatment.*
Improved	18	26
In statu quo	2	16
Worse	1	2
Died	0	17

13 open air shelters have been lent to patients for use in gardens or any open space available, but I fear the utmost use has not been made of many of these shelters, for until people have resided in a Sanatorium, they do not understand open-air methods sufficiently to receive the utmost benefit from a shelter. When, however, we can send more patients to a Sanatorium the shelters will be most useful after the patient returns home.

A grant of extra nourishment has been made in 111 cases, either in receipt of dispensary or domiciliary treatment. Many cases, in which it was deemed necessary, have been allowed this extra nourishment whilst waiting for a bed in the Sanatorium.

In many cases this extra nourishment grant has proved most beneficial more especially to malnourished children showing early signs of Tuberculosis. Many of these children have improved so much with the extra nourishment received that it has been unnecessary to send them to a Sanatorium.

In March, a laboratory was opened in the Public Health Department, and an offer to examine, free of cost, any sputum sent, was made to all practitioners in the County. Up to the end of the year 201 specimens were examined and reported upon, as follows :—

Positive	47
Doubtful	7
Negative	147

Now, however, this offer has had to be temporarily withdrawn.

RESPIRATORY DISEASES.

During the year 410 deaths were registered as due to Respiratory Diseases (including Phthisis). Of these 272 occurred in Urban districts, and 138 in Rural districts. These give respectively rates of 2.2 and 1.4 per 1,000 of population, compared with 2.1 and 1.8 in the previous year.

The rate for the Administrative County is 1.9, compared with 2.0 the previous year. Arranged in the order of their death-rates from Respiratory Diseases, the Urban districts stand thus :—

Egremont	3.4	Wigton	2.1
Whitehaven	3.3	Harrington	1.7
Arlecdon & Frizington	2.7	Holme Cultram	1.7
Cleator Moor	2.5	Workington	1.6
Cockermouth	2.3	Penrith	1.5
Maryport	2.3	Aspatria	1.4
Millom	2.3	Keswick	1.3

And the Rural districts thus :—

Whitehaven	2.2	Brampton	1.3
Longtown	1.7	Wigton	1.3
Alston	1.6	Carlisle	0.7
Cockermouth	1.5	Bootle	0.5
Penrith	1.4		

RIVER POLLUTION.

The abatement of the pollution of rivers more particularly of the River Derwent, has continued during the year. I am glad to be able to report that there is, at last, a prospect of stopping the serious pollution of the River Greta from the Threlkeld Lead Mines.

Settling tanks are at present being constructed, through which all the water coming from the mine, whether used in the process of washing the ore or not, will have to pass before running into the river. I am given to understand also—from the Manager of the mine—that the water will be chemically treated in order to neutralise the acid contained in it, before entering the river. It was, I believe, mainly due to the acid in the water that so many fish were killed.

No complaints have been made during the year of pollution of the rivers, with the exception of the Derwent and its tributary, the Marron.

Serious pollution of the former river still goes on from coal washing at Camerton Colliery, and from the sewage from the Cockermouth Urban Districts outfall works.

The Cockermouth Urban District Council has, I understand, taken the opinion of an expert engineer on the condition of their sewers and outfall works, and it is to be hoped that at as early a date as possible his advice will be followed.

A considerable amount of pollution of the rivers and streams flowing through Cockermouth also takes place both by the tipping of refuse and by drainage of slop water. Little effect has been produced by the posting of notices drawing attention to the penalties attached to tipping refuse into streams.

Most of the streams running through Rural districts are more or less polluted by slop water and drainage from houses and farmyards.

WATER SUPPLY.

With few exceptions the water supplies to Urban districts are referred to in the reports from the various districts as being satisfactory, both in quantity and quality.

Dr. Cullin, however, in his report to the Harrington District Council, referring to the water supply, points out that for some years there has been a shortage in the higher parts of the district, and goes on to say :—

> " To overcome this difficulty, our mains have been scraped several times, in certain parts of the town the mains doubled, and a stand pipe erected at Lowca reservoir to try and keep High Lowca supplied. We certainly improved the supply for a time by these methods, especially in the town itself, where the supply is good, but I am sorry to say in other parts of the district the supply is both at times intermittent, bad, and in some cases non-existent. We cannot, however, blame altogether the plant and mains for this shortage.
>
> " As a district we have increased in numbers and house property very much since the original scheme was planned. Our population increased by over a thousand between 1891 and 1911, and, of course, as might have been expected, the original scheme laid down for a gravitation supply, pure and simple, when the population was much less. and the number of houses much fewer, is turning out to be very inadequate.
>
> " A couple of years after the scheme was completed, it failed as a gravitation supply, and an expensive pumping plant had to be added to supply the district long before it started to develop like it has done in past years. In fact, it seems to me we are trying to supply a growing and increased number of inhabitants by means of a plant laid down for a much smaller population ; a scheme that was bad from its inception, in that it could not supply in a proper manner the higher parts of the district even when new. The Council have sanctioned plans for the erection of 25 new cottages at Lowca......with an expectancy of many more in time to come. We are therefore face to face with a very serious difficulty in the future as regards our water supply. In fact in my estima-

tion, we have about reached the end of our tether with our present plant, and a maximum supply of 120,000 gallons per day.

"The Council very rightly grappled with this serious matter in a proper manner. They have looked for and found a new and plentiful supply of good water, and what is of the very greatest importance to this district, a gravitation supply.

"The quality of our present supply is excellent, but by trying to keep the supply up by scraping our mains, it has been very dirty when this process is going on, worse, no doubt, by the effect of the pumping.

"The scraping seems likely to become a frequent instead of a seldom procedure, from the condition the pipes were found to be in since the last scraping. As you are aware, the analysis of the proposed new supply is excellent, both as a drinking and domestic water. We must, in the near future, have a more constant and increased supply, wherever the water has to come from. If we start to renew our old pumping plant, and the mains from it to our reservoirs, we will be forced to spend a large amount of money, and still have the pumping evil ever with us, also its great expense, and, what is of very great importance, still to be tied to a maximum supply of 120,000 gallons per day, if we do not find favour with the vendors of the water. On the other hand, if we can get an unlimited supply of good water, which by gravitation reaches all parts of the district, then, I say, there is no comparison between the two alternatives."

Of Holme Cultram, the Medical Officer of Health says :—

"The Urban parts......have an excellent supply ......The rest of the district depends entirely on wells, which are of the surface type,"

which would appear to give a most unsatisfactory supply.

In the Millom district the Medical Officer of Health says the water is pure except for some earthy matter, owing to the want of filtering beds, and he expresses the opinion that there is some risk of pollution of the water supply from farm buildings on the gathering ground.

With regard to the water supplies to Rural districts, matters are as they were when last reported on. An enquiry has been held with a view to securing a better supply for the Carlisle Rural district, the decision of the Local Government Board is not yet, however, known.

None of the other districts have yet taken any definite steps to improve their supplies, and the war has now furnished an excellent excuse for further postponement.

ISOLATION HOSPITAL ACCOMMODATION.

The following Report on Isolation Hospital accommodation was considered, and subsequently a meeting of your Committee, along with Representatives of the various Local Authorities, was held, and the matter was discussed.

It was quite evident from the opinions expressed at this meeting, that those Authorities who had no hospital accommodation had no intention of providing any. The only alternative then is for the County Council to exercise their powers, and, should they deem such further accommodation necessary to build hospitals on some such lines as are suggested in the Report.

At no time since the outbreak of war have large numbers of troops been stationed in any one part of the County, but should such become necessary, and an outbreak of infectious disease occur, I have very grave fears that, at any rate in some parts, nothing could be done to prevent the spread, except such steps as could be taken in an emergency, and they would necessarily prove inadequate and expensive.

During the year representatives of the Borough of Whitehaven, the Urban districts of Arlecdon and Frizington, Cleator Moor, Egremont and Harrington, with the Rural district of Whitehaven, have had under consideration the provision of a hospital for Smallpox. I understand that a site has been provisionally selected, but, of course, a Local Government Board enquiry will have to be held to decide whether the site is a suitable one or not, until this is done no further progress can be made.

SPECIAL REPORT ON ISOLATION HOSPITAL ACCOMMODATION IN THE COUNTY OF CUMBERLAND.

To the Chairman and Members of the Health Committee.

MR. CHAIRMAN AND GENTLEMEN,

" At the request of the Local Government Board I have prepared and submit for your consideration the following Report on the Isolation Hospital accommodation in this County.

" The Infectious Diseases for which it is generally considered necessary to make provision in isolation hospitals are Smallpox, Plague, Cholera, Typhus, Enteric and Scarlet Fevers and Diphtheria.

" Plague, Cholera and Typhus Fever, have now become so rare, however, that for practical purposes they may be left out of count, except in some special areas.

" Smallpox must be dealt with separately from the other diseases.

" In order that you may have some idea of the numbers of these diseases which occur in the County, I have drawn up the following table :—

TABLE SHOWING THE NUMBER OF CASES OF DIPHTHERIA, SCARLET FEVER, AND ENTERIC FEVER WHICH HAVE BEEN NOTIFIED AND THOSE REMOVED TO HOSPITALS IN THE COUNTY OF CUMBERLAND DURING THE PAST SIX YEARS, 1908 to 1913.

	Diphtheria.		*Scarlet Fever.*		*Enteric.*	
URBAN.	Cases Notified	Sent to Hospital	Cases Notified	Sent to Hospital	Cases Notified	Sent to Hospital
Workington	194	29	731	354	248	169
Whitehaven	40	11	384	273	28	21
Arlecdon & Frizington	17	—	118	40	2	—
Aspatria	9	—	296	—	—	—
Cleator Moor	27	6	114	37	4	3
Cockermouth	22	—	21	—	4	—
Egremont	36	1	251	67	2	—
Harrington	8	1	48	21	5	1
Holme Cultram	12	2	18	—	9	2
Keswick	32	16	67	60	1	1
Maryport	62	—	192	—	6	—
Millom	74	58	189	131	16	10
Penrith	105	72	68	63	—	—
Wigton	16	—	36	—	2	—
Urban Totals	654	196	2533	1046	327	207
RURAL.						
Alston	18	—	17	—	5	—
Bootle	30	19	70	48	8	6
Brampton	27	1	80	—	—	—
Carlisle	51	32	312	132	11	6
Cockermouth	139	—	508	271	23	—
Longtown	17	1	144	14	1	—
Penrith	100	55	86	47	1	—
Whitehaven	85	24	517	340	4	2
Wigton	35	—	156	—	9	—
Rural Totals	502	132	1890	852	62	14
Totals for County	1156	328	4423	1898	389	221

" Obviously averages are of but little use to indicate the maximum possible number of cases which may occur at any one date, and it must always be borne in mind that more than one infectious disease may be epidemic at one and the same time.

" The number of cases which have been removed to hospitals is also shown in the table.

" A little calculation will show that in the past six years 30 per cent. of Diphtheria, 41 per cent. of Scarlet Fever, and 61 per cent. of Enteric Fever cases occurring in Urban districts, and 26 per cent., 45 per cent. and 22 per cent. respectively in Rural districts have been removed to Isolation Hospitals.

" The number of cases for which it is generally considered necessary to make provision in Isolation Hospitals is roughly 1 bed for each 1,000 of population.

" The population of the County, estimated to the middle of last year, was 214,973 (all estimates and figures given are, of course, excluding the City of Carlisle).

" The number of beds available in Isolation Hospitals throughout the County is 178, so that on this basis we have 1 bed for each 1,207 of population.

" This, on the face of it, does not seem quite to justify the statenent which I have repeatedly made in my Annual Reports that " hospital accommodation in the County is totally inadequate."

" But if we leave out of our reckoning the two Boroughs of Whitehaven and Workington, then in the rest of the County we only have 1 bed available for each 1,772 of population.

" Whitehaven has one bed for each 800, whilst Workington has 1 bed for each 450 of population ; a wise and necessary precaution for both these Boroughs.

" The Arlecdon and Frizington, Cleator Moor, Egremont, and Harrington Urban Districts, together with the Rural district of Whitehaven, having a combined population of 38,495 are all served with a joint Hospital with accommodation for 20 beds ; thus there is 1 bed for each 1,924 of population.

" Holme Cultram Urban district has a small 4 roomed cottage with 2 beds, originally intended for cases of plague or cholera which came to the Port of Silloth, but which is occasionally used for other cases. It is quite unsuitable for the purpose however.

" The Millom Urban district and the Bootle Rural district, having a combined population of 14,318 have a joint Hospital with 24 beds, thus there is 1 bed for each 597 of population. At the present time this hospital is not entirely satisfactory, but I understand considerable alterations are in contemplation.

" The Penrith Urban and Rural Districts, having a combined population of 21,434, have a joint hospital of 20 beds, thus there is 1 bed for each 1,071 of population. This hospital is quite satisfactory.

" Keswick Urban district having a population of 4,403, has a hospital of 10 beds. Access to this hospital is exceedingly difficult over Whinlatter Pass, and the hospital itself is not entirely satisfactory.

" The Carlisle Rural district sends its patients to the Crozier Lodge Hospital in conjunction with the City of Carlisle.

" Cockermouth Rural district has a small wood and iron hospital of 11 beds for Scarlet Fever cases only. Their hospital, although small is exceedingly well managed and serves well the purpose for which it is intended, but there is no steam disinfector attached to the hospital.

" The following districts have no isolation hospital accommodation :—Aspatria, Cockermouth, and Wigton Urban districts, and Alston, Brampton, Longtown, and Wigton Rural districts.

" The efficiency or otherwise of isolation hospital accommodation must not be judged by the number or even the percentage of cases sent to hospital of those notified. It is the very essence of the utility of an isolation hospital that it should be ready to isolate the first case, and so in combination with other measures prevent the spread of disease.

" Experience has shown, time and again, that, so far as stopping the spread of infection goes, it is useless to send cases to an isolation hospital after an epidemic has reached the height of its intensity, but on the other hand there can be no question that the immediate isolation of an imported or initial case of infectious disease is often followed by no spread.

"Cases of infectious disease often occur under circumstances in which to allow them to remain at home would be dangerous to the general public, as for example a case occurring in the family of a milk seller, in a small country shop, at a small rural post office, etc.

"Instances too may be found of cases which ought to be removed for the double reason that because they have insufficient accommodation in their own homes they are a danger to the community, and on account of the smallness and overcrowded state of the house the chance of recovery, if allowed to remain in such unsatisfactory surroundings, is thereby greatly lessened or at any rate delayed.

"Again, to attempt to isolate all cases during the height of an epidemic when panic has arisen is very unwise policy, because in the majority of instances it leads to overcrowding of wards with disastrous results to the patients.

"Hospitals provided in non-epidemic times are always more efficient than those erected in 'panic' times.

"In the former case, time can be given to the consideration of the various details as to site and construction so necessary to the complete success of a hospital for infectious diseases.

"In the latter case, *i.e.*, when hurriedly provided, it is often not ready for occupation until the immediate cause of its erection has ceased for the time being to exist. It, as a general rule, provides accommodation of a very indifferent sort; it fails nearly always to meet the permanent requirements of the district, even when in amount of accommodation it turns out to be more than the district requires, and thus the hospital is obtained in a very imperfect manner and at a needlessly large cost.

" On the other hand, hospitals provided in non epidemic times and after due consideration has been given to all details, and which are always ready to receive the first case of infectious sickness have proved themselves excellent investments for money expended.

" Much has been heard in recent years of the supposed uselessness or even worse of isolating cases of Scarlet Fever, but I believe that this impression has got abroad mainly from the fact that cases are rushed to hospital only when a ' scare ' has arisen, instead of removing the first cases, and so preventing spread.

" In considering the usefulness or otherwise of isolation hospitals, the matter has to be looked at from two points of view, viz., (a) from the point of view of the patient, and (b) the point of view of the general public.

" It is an undoubted fact that the majority of epidemics start amongst persons whose homes are insanitary, and whose surroundings are such that they are more liable, on account of their unwholesome surroundings, to be attacked by any infectious disease. Again, owing largely to the overcrowded and unhealthy conditions in which they live, what is known as their natural resistance to any disease is so much lessened that they are not only more prone to take disease, but are more liable to have a more severe attack than those whose surroundings are more healthy, and whose homes are not overcrowded, hence it is greatly to their own advantage to be removed into an isolation hospital, where they will get away from such conditions into the atmosphere of an hospital where their surroundings will be more wholesome.

" Again, too, it is almost impossible for the necessary nursing to be given in a small cottage home where the mother has all the house-work to do as well as the nursing of the patient. Under such circumstances it is practically impossible to ensure that other children will not come in contact with the infected patient, and so spread the infection, and, too, it must always be remembered that the mother nursing a case may convey infection to the rest of the children or even to those outside her own home.

" It is seldom that people of the poorer classes can be persuaded that there is a real danger of the spread of infection, and it is next to impossible to make them take the necessary precautions.

" Again, to take a case of scarlet fever as an example, such a case ought to be isolated, because it is infectious, for a period of some six weeks, but such a period of isolation in a small house means that the patient ought to be confined to one room during the whole of that period, and although the patient is well enough to go out, he has to be kept to the one room because of the danger of spread to others. In a well organised and properly constructed hospital where every precaution is taken that patients do not come into contact with those outside, such confinement is not necessary, with the result that great benefit is gained to the patient, and in all probability the period of isolation is considerably curtailed.

" With regard to the gain to the public :—by removing a case of infectious disease to an hospital, a centre of infection is removed from the midst of the population, and so the risk of spread must be decreased.

" In most isolation hospitals the treatment is now given free of charge, because although in some cases, even in most cases considerable benefit will accrue to the patient it must be remembered that the patient is removed mainly for the good of the general public, and not for any benefit to himself.

" It has been urged that in some places where removal to isolation hospitals has been strictly carried out, the infectious diseases have not diminished in frequency, and it has even been said that the incidence of certain diseases has rather increased.

" Removal to hospital, however, is only one step in the process of prevention of spread of infection, and it must not as is too often done, be supposed that a Sanitary Authorities' duties end with the removal of a patient to hospital.

" That the incidence of certain diseases, notably scarlet fever, has not diminished must be attributed to several facts :

" 1.—The mildness of the majority of cases in recent epidemics.

" 2.—Partly, or greatly, on account of this, the occurrence of unrecognised or unnotified cases. These cases have been undoubtedly very numerous, and are a frequent cause of mysterious outbreaks in schools. . .

" 3.—The deliberate attempts of some people to hide the fact that there is a case of infectious disease in the house ; or, on the other hand, acute symptoms may be entirely absent, leading people to believe that a child is only suffering from a cold, some slight stomach derangement, or other minor ailment.

" 4.—Notification of the case is, for one reason or another, in many cases considerably delayed, or removal to hospital may not occur till after other members of the family have become infected.

" 5.—I believe, however, that the main reason why there has not been such a marked diminution in the incidence of the more common infectious diseases as was expected is, not that infectious disease hospitals have not fulfilled their function, but that infection is so much easier spread, owing to the much greater facilities that now exist for communication and intercourse from urban and rural centres, and between neighbouring districts than in former years. Gatherings in villages are much more common than formerly, for there are few villages of any size at the present time where evening entertainments are not provided in one form or another, and where children are in the habit of congregating.

" For these reasons I am strongly of opinion that the provision of isolation hospital accommodation is more urgently needed for all Urban and Rural districts than ever before.

" Published figures go to show that when a case is left in an average house, about six times as many of those susceptible to infection take the disease as when the initial case is sent early to hospital.

" The County Council as the Local Education Authority for the County has to consider this matter from another point of view, viz., the annual loss of grant suffered from the fact that owing to insufficient isloation hospital accommodation, when a case of infectious sickness occurs in a house, not only has the patient to be excluded from school, but also all children living in the same house, and who have as a consequence been exposed to infection. In the case of scarlet fever, this necessitates an exclusion for a period of some six or seven or even eight weeks—in some cases even longer—of a whole family. In many cases this will mean the loss of grant for some hundreds af attendances, whereas had the first case been promptly removed to hospital it would only be necessary to exclude the other children until the period of incubation of the disease in question was safely passed, provided, of course, that none of them in the meantime had shown any signs of the illness.

" The foregoing remarks, in the main, apply only to the more common infectious diseases, scarlet fever, diphtheria, and enteric fever.

" As regards hospital provision for smallpox cases there can be no question as to either the utility of hospitals or, indeed, of their absolute necessity, for very few houses can provide sufficient accommodation or are sufficiently isolated to provide suitable means to isolate a case of smallpox.

" For several years past I have ventured to express the opinion that sooner or later this Country will be visited by an epidemic of smallpox, such as has not been experienced by the present generation.

" I have based this opinion on the facts firstly, that experience has demonstrated that previous to an epidemic outbreak, sporadic cases have occurred from time to time, and in different localities—it may be for several years before the final outbreak.

" For several years past such sporadic cases have been occurring.

" Secondly, the condition of the general population has probably never, since the introduction of vaccination, been in such favourable circumstances for the outbreak of a serious epidemic as it is at the present time.

" I think it is a perfectly fair statement to make, that at least 35% of the present population of this County under the age of 16 years is totally unvaccinated, and therefore highly susceptible to the infection of smallpox, and that the vast majority of the rest of the population is insufficiently protected that is to say, that although they may be protected by primary vaccination in infancy, against a serious attack, they are not sufficiently protected by re-vaccination to ensure their not having a mild or modified attack.

" It must, too, be remembered that the present time is one of especial danger, past experience having shown that smallpox is one of the diseases most to be feared during war time, and during the period of privation for many after war is over.

" That this apprehension of danger is shared by the Authorities is manifest, for in August a circular pointing out the steps to be taken on the notification of a case of smallpox, was issued by the Local Government Board, from which I make the following extracts :—

> " ' At the present time an outbreak of smallpox would be especially serious ; and as there are possibilities of the importation of smallpox, it behoves all Sanitary Authorities to see that all precautions for dealing with the disease are in working order.' . . . . . .
> ' Recent vaccination or re-vaccination constitutes the only safeguard against attack for persons exposed to the infection of smallpox, and all the measures set out below can be carried out with a much more certain prospect of success in a well vaccinated community. . . . .'
>
> " ' Satisfactory hospital provision for smallpox patients can rarely be improvised. A Sanitary Authority which has not such accomodation either independently or under an agreement with some other Sanitary Authority is incurring a heavy responsibility.'

" Seeing then that vaccination in this County has been so much neglected, and this, of course, is to be attributed to the so-called ' conscience clause ' in the Vaccination Acts, hospital provision for isolating the earliest cases is our only safeguard. Not only is hospital accommodation for the actual case necessary, but some premises ought to be ready to which 'contacts' can be removed, at any rate while the house is being disinfected, but safer still, in which they could be kept until the period of incubation was safely passed.

"The hospital accommodation at present in the County for isolating cases of smallpox consists of 28 beds distributed as follows :—

"In the Derwent Joint Smallpox Hospital at Camerton there are 8 beds; this hospital serves the Urban districts of Workington, Cockermouth, Keswick, Maryport, and the Rural district of Cockermouth.

"The Penrith Urban and Rural districts have a joint hospital of 8 beds.

"The Millom Urban and Bootle Rural districts have, a joint hospital at Millom of 8 beds.

"There is a small iron match-boarded building with 4 beds for the Wigton Rural district, and the Carlisle Rural district has an arrangement with the Carlisle City Authority to send their cases to the hospital belonging to the City.

"We have, therefore, the following districts totally unprovided in this respect :—The Borough of Whitehaven, the Urban Districts of Arlecdon and Frizington, Aspatria, Cleator Moor, Egremont, Harrington, Holme Cultram, Wigton, and the Rural Districts of Alston, Brampton, Longtown, and Whitehaven.

"I believe it is suggested that cases of smallpox might be treated at the Galemire hospital, but this hospital is quite unsuitable for treating such cases, and the proposal would not, I am sure, meet with the approval of the Local Government Board.

"There are two ways by which hospital accommodation may be provided under various Public Health Acts: (*a*) by the Local Sanitary Authority, and (*b*) by the County Council.

"Local Authorities are empowered by the Public Health Act, 1875, (Secs. 131-133) and by the Isolation

Hospitals Acts, 1893 and 1901, to build hospitals of their own, or to combine with other authorities for this purpose.

" Soon after County Council administration came into force, it was found that many Local Authorities were inadequately supplied with hospital accommodation for isolating cases of infectious disease.

" In 1892 the County Councils Association promoted a Bill to make provision for such hospitals.

" In the following year the Bill was amended, and became law as the Isolation Hospitals Act, 1893, and County Councils were empowered to establish in any of their districts Isolation Hospitals for the reception of patients suffering from infectious disease.

" The initial action can be taken by the County Council in consequence of an application made to them by a Local Authority, either Urban or Rural, or by 25 or more ratepayers, or as the result of an enquiry made by the County Medical Officer at their request.

" On the County Council being satisfied after a local enquiry as to the necessity of an Isolation Hospital, they may constitute a ' hospital district ' consisting of one or more local areas, and direct that a hospital be established.

" Following this a Hospital Committee is formed, consisting of representatives of the Sanitary Authorities, with the addition, if thought fit, of members of the County Council.

" Section 21 of this Act empowers the County Council to contribute a capital, or an annual sum, towards the structural or maintenance expenses of an isolation hospital so provided, or to either class of such expenses, and by an amending Act passed in 1901, the County Council may extend their contribution to any hospital established by a Local Authority under Section 131 of the Public Health Act, 1875.

" It is evident then that Sanitary Authorities are in the possession of powers for dealing with infectious diseases to a degree which admits of thorough administration, but these powers have, it must be admitted, in many cases not been taken advantage of. This I have no doubt is not from unwillingness to do so, but rather from an appreciation of the obvious difficulties in dealing with small sparsely populated areas, which do not arise in large centres with large populations and high rateable values.

" In such counties as Cumberland, which, as you are aware, is divided up into small sanitary districts, combination of areas for the purpose of hospital provision has been found to have distinct advantages, both as regards economy and efficiency, as compared with the establishment of a separate small hospital for each district.

" These advantages are pointed out in a report on Isolation Hospitals, published as a supplement to the Annual Report of the Chief Medical Officer to the Local Government Board for 1910-11, as follows :—

> " ' 1. By the establishment of a single hospital in place of two or more hospitals, one site only has to be obtained, and the number of possible or feared *foci* of infection is limited ; the duplication of various buildings and appliances is avoided, and the cost of fencing and other requirements, proportionately to the number of beds is reduced.
>
> " ' Thus an isolation hospital, however small, would require provision for :—
>
> (1) a ward block for patients,
> (2) quarters for the staff,
> (3) laundry and other out-offices,
>
> and these should be in separate buildings. Hence, having regard to the need for placing these buildings at a proper distance from the boundary and from each other, and, it may be, for ground on which to dispose of sewage and refuse, the site for a hospital, however small, can rarely be less than one acre. But the administrative and laundry accommodation, which would be required for a hospital of only one small ward block would suffice, with comparatively small increase, for a larger ward block, or for two or even more ward blocks ; and a site of two acres would thus afford

space for buildings capable of holding many more than twice the number of patients, who could be placed on a site of only one acre.

" ' A site of one acre, if rectangular, and measuring 40 by 121 yards, would require 322 yards of fencing to enclose it, but a site of the same length, if 80 yards wide, would contain two acres instead of one, and yet would require only 80 yards additional fencing.

" ' Similarly with water supply, sewage disposal, and other matters, work which would be necessary for a hospital, however small, would serve with comparatively small additions for one considerably larger.

" ' 2. The classification of patients in relation to the disease from which they are suffering is facilitated by combination. In a district, however small, if provision has to be made for the isolation at one time of two diseases in patients of both sexes there must be two pairs of wards, each pair having no direct aerial communication with the other pair. But the same number of wards may serve for the isolation of the diseases likely to be met with at one time in a considerably larger population, and if the size of the wards may have to be increased, this can be effected by merely adding to their length, which is a less costly matter than erecting a new block.

" ' 3. Combination enables a more efficient staff to be maintained. An hospital serving a small district may be empty for prolonged periods, but this is less likely to happen with an hospital serving a larger area in which infectious diseases will probably not be equally prevalent at the same time in every part. Hence for the latter it will be worth while to retain permanently a competent staff, a course which may be impracticable for a small hospital, often empty.

" ' Moreover, below a certain point, the number of staff required does not diminish in proportion to the number of beds. For a ward block, however small—say of only two beds—if containing patients seriously ill, two nurses, one by day and one by night, may be required, for whom accommodation will have to be provided, but the same number of nurses may suffice for a larger ward-block containing, say six beds. The addition of another ward-block might involve a proportional increase in the number of nurses, but not in the other staff, *e.g.*, one caretaker would still suffice.

" 'Notwithstanding these obvious advantages, it is often difficult to induce local authorities to combine for hospital provision. Sometimes the objection arises from a desire to manage their own affairs independently, or from the jealousy and mistrust of one another, which are, unfortunately, too commonly met with among neighbouring local authorities.

" 'Sometimes local authorities fear that if a joint hospital district were formed the hospital for the combined district might be placed in or near their district, so that patients from other places might be brought into their own district or conveyed by road through it, involving, as they think, greater risk of infection than if the hospital were for the use of their own district alone. The experience of the Board's Medical Department does not, however, support either of these objections. Except in the special case of hospitals for smallpox, there is no evidence that infectious disease ever spreads to the surrounding population from an isolation hospital at which the buildings are placed at a suitable distance from the boundary, and are enclosed by a proper fence in accordance with the Board's requirements, and which is properly administered.

" 'Nor is there any evidence that danger to the public arises from the conveyance through the streets of persons suffering from infectious diseases, if effected in a proper ambulance, and with ordinary care.'

" In considering what hospital accommodation should be provided for treating all cases of infectious disease, it must be remembered that smallpox should not be treated on the same site as that for any other disease, and that such a hospital should be as remote from inhabited districts as is practicable, hence it will be necessary to consider what accommodation is necessary.

(*a*) *for ordinary cases of infectious disease, and*
(*b*) *for smallpox cases.*

I. For cases of ordinary infectious disease.—The Boroughs of Workington and Whitehaven, the Urban districts of Keswick, Millom and Penrith, and the Rural districts of Bootle, Carlisle and Penrith have, so far as number of beds goes, sufficient accommodation in the various hospitals provided, so that it remains now to consider the best means of providing hospital accommodation for those districts which have either insufficient or no accommodation, viz., the Urban districts of Arlecdon and Frizington, Aspatria, Cleator Moor, Cockermouth, Egremont, Harrington, Holme Cultram, Maryport and Wigton, and the Rural districts of Alston, Brampton, Cockermouth, Longtown, Whitehaven and Wigton.

" As previously stated, it is generally considered advantageous from every point of view to have a smaller number of comparatively large hospitals rather than a larger number of small hospitals.

" It is within the powers of Sanitary Authorities to erect hospitals for themselves, or for the County Council to create ' hospital districts,' it is fairly obvious that the most efficient and economical method of dealing with isolation hospital accommodation for this County is forming hospital districts.

" What I would respectfully suggest then is a joint meeting of your Committee, with representatives of the various Sanitary Authorities concerned, along with their Medical Officers of Health, and as a basis for consideration I would suggest some such arrangement as the following:—

(*a*) *For ordinary infectious diseases, that the following hospital districts be formed for those districts in the County which have not already provided adequate accommodation.*—

I. The Rural districts of Brampton and Longtown, an area roughly of 20 square miles, with a population of 14,149, thus at least 14 beds will be required.

II. The Urban districts of Holme Cultram, Aspatria, Wigton, and the Rural district of Wigton, an area of roughly 20 by 14 miles, with a population of 23,013, which will, therefore, require 23 beds.

III. The Urban districts of Maryport, Cockermouth and Keswick, with the Rural district of Cockermouth, an area of roughly 24 by 14 miles, with a population of 43,353, which will, therefore, require 43 beds.

" I have included the Keswick Urban district in this area because, although it has an hospital of its own, I do not consider the site an altogether satisfactory one.

IV. The Urban districts of Harrington, Arlecdon, and Frizington, Cleator Moor, Egremont, and the Rural district of Whitehaven, an area of roughly 14 by 12 miles, with a population of 38,595, and which will, therefore, require 38 beds.

" This area is at present served by the Galemire hospital, which at present has the requisite number of beds, but is very much overcrowded in consequence, and it would require to be considerably enlarged.

" With regard to the Alston Rural district, it is difficult to include it in an area with a centrally placed hospital without increasing the distances to be travelled from other places, out of all proportion to the advantages, therefore, the best solution of the problem would seem to be either to build a small hospital for that district alone, or to try to come to some arrangement with the Penrith Joint Hospital Board to take Alston patients into their hospital. The latter arrangement will probably not be thought feasible, because patients in some instances might have to be moved considerably over 20 miles, and over a road which, in winter, might prove to be impassable.

" As an alternative, it might be considered, by the authorities concerned, more advantageous for the Longtown, Brampton and Alston Rural districts to enter into negotiations with the Haltwhistle Rural district of Northumberland, with a view to having a joint hospital for ordinary infectious diseases, and another for smallpox, to serve the four districts.

" With regard to the sites for these various suggested hospitals, there would, I think, be no great difficulty in getting a suitable, more or less centrally, situated site in any of these areas as mapped out, and should this or any modified scheme commend itself to you, I would, in conjunction with the Medical Officers of the districts concerned, make the necessary enquiries.

" Great though the distances of some of the outlying parts of these areas must necessarily be from any centrally-placed hospital, it would in no case exceed 10 or 12 miles, and for many reasons it would probably be more economical, and certainly more efficient to provide motor, instead of horse-drawn, ambulances. It may be found that one motor ambulance could serve more than one area.

" Experience has shown that if a patient is in a fit state to be moved at all it does not matter whether the distance is one mile or ten, so long as a good anbulance is provided, and the road is tolerably good.

" With regard to (*b*) smallpox cases, the matter is more difficult of satisfactory solution, but is of even more importance, not only from a public health point of view, but also from a financial one.

" At the risk of reiteration, I would like to emphasise the following facts :—

1. The population of this County, and I think, the same may be said of the country, because I have no reason to suppose that Cumberland is any worse than her neighbours, has never, within the time of the present generation, been more ripe for a severe epidemic of smallpox than it is at the present ime.

2. The exceptional circumstances at present in existence make the risks of an outbreak greater than in ordinary times.

3. In order to cope successfully with an outbreak, it is absolutely necessary to be in a position to deal with the first case discovered immediately, and this can only be done by having isolation hospital accommodation prepared and ready beforehand.

4. Although a smallpox hospital may stand empty for several years, entailing a possible expenditure of a

few pounds a year, it still must be considered a wise and economical expenditure, just as any form of insurance is, because past experience has shown that an epidemic of smallpox breaking out in an unprepared area may within a few months entail an expenditure of many thousand pounds, without taking into consideration the loss of life.

The accommodation for smallpox cases at present in the County is :—in the Derwent Joint Hospital, at Camerton, which serves the Borough of Workington, the Urban districts of Cockermouth, Keswick, Maryport, and the Rural district of Cockermouth, there are 8 beds.

The Urban district of Millom, and the Rural district of Bootle, have a joint hospital with 8 beds.

The Urban and Rural districts of Penrith have a joint hospital with 8 beds.

" Those areas which have, at present, no accommodation, and which have no arrangements made, might make some such arrangements as the following :—

I. The Longtown and Brampton Rural districts might approach the Carlisle City Authority, and try to come to some arrangement with them to admit their patients to the City hospital. The City Authority have ample ground to extend their hospital if necessary. The Carlisle Rural district already has an arrangement with the City Authority.

II. The Derwent Joint Smallpox Hospital Board would, I have no doubt, be willing to extend the area served by their hospital to include the Urban districts of Holme Cultram, Aspatria, and Harrington.

" The Urban and Rural districts of Wigton could come under either I. or II., whichever they could make arrangements with, as the distance to either hospital would be about the same.

III. A new smallpox hospital would be necessary situated somewhere about the centre of the Whitehaven Rural district, and would serve the Urban districts of Arlecdon and Frizington, Cleator Moor, Egremont, and the Rural district of Whitehaven.

"It might be found more convenient for the Borough of Whitehaven to join this group, as the hospital would probably be nearer to them than that at Camerton.

"I suggest a new hospital comparatively close to the present one at Camerton, because the whole of this area in the West is somewhat densely populated, much more so than any other part of the County.

In none of these hospitals, either for ordinary or for smallpox cases, would it be necessary to maintain permanently a large number of beds, but means ought to be at hand, and sufficient ground available, to rapidly extend the accommodation as, and if, required.

"If hospital accommodation such as is outlined in this Report were adopted for the whole County, it would not be necessary to permanently keep up a large staff in each hospital when not needed. A scheme such as that devised by the County Medical Officers of Worcestershire and Gloucestershire, for the interchange of nurses between the various hospitals as required could be put in operation, and thus the cost of maintenance of staff could be considerably reduced.

"I sincerely hope your Committee will give this Report your favourable consideration, and that some workable scheme may be evolved, because there are many districts in the County which have had, from time to time, to regret their inability to isolate infectious diseases as they have arisen.

"It should not be forgotten, too, that such accommotion is particularly needed now in order, if possible, to prevent epidemics amongst the troops.

I have the honour to be,
Yours obediently,
F. H. MORISON,
County Medical Officer of Health.

HEALTH DEPARTMENT,
48 WARWICK RPAD,
CARLISLE, *December*, 1914.

MIDWIVES' ACT.

Each midwife is visited at least once every three months, but several have had to be visited more frequently by Miss March, the County Midwives Inspector, and she presents a report of her work to me quarterly.

On the whole the work now done by the midwives is satisfactory, and a marked change for the better as regards personal cleanliness, and cleanliness of their bags, is to be noted.

The number of midwives who notified their intention to practice during 1914 was 100, being a decrease of 8 on the number practising in the previous year.

Of the 100 practising, 34 were *bona fide* midwives, having practised before the Act came into force, and 66 were certified.

The number of births attended by registered midwives during 1914 was 2,268, equivalent to 43 per cent. of the total registered births. Thus midwives have attended 5 per cent. more births than in the previous year.

The number of intimations received by me of midwives sending for medical help was 32, the number of still-births reported in the practice of midwives was 16.

Three notifications of deaths were received, and 33 notifications of having prepared or assisted to prepare a dead body for burial were received.

I am aware that a fair amount of unqualified practice still goes on, and several enquiries have been made with a view to prosecution, but owing to the words in the Act " habitually and for gain," it is almost impossible to get sufficient evidence, more especially as the people attended by these unqualified women are very reluctant to " get them into trouble."

DRAINAGE, SEWERAGE, AND SEWAGE DISPOSAL.

A short summary of the conditions in each district will be found in the second part of this report.

There has not been a great deal done in the matter of drainage and sewerage in any district, and many of the reports deal very inadequately, and some not at all, with the subject.

It is hardly likely that at the present time any new work in this direction will be undertaken, and it is to be feared that much of that in contemplation will be held up.

REMOVAL OF HOUSE REFUSE AND SCAVENGING.

During the present crisis the work of removal and disposal of house refuse and scavenging is a question which, because it has not received enough attention in the past, becomes now all the more important and urgent.

The danger from all epidemic disease, and perhaps most of all the danger of epidemic Diarrhœa amongst infants, is very acute, and the tendency, I am afraid, will be to restrict precautions owing to the exigencies of the war.

In this connection the following, taken from a circular from the Local Government Board, dated 25th July, 1913, is of special interest at the present time, and should be of special interest to the Sanitary Authorities of this County :—

> " In particular, I am to remind the Council of the danger to health caused by accumulations of refuse in the neighbourhood of dwellings. Such accumulations provide breeding grounds for flies, and are otherwise open to serious objection. It is essential to the health of a district that there should be arrangements for the efficient and frequent removal of house, stable and street refuse, and the contents of privies and other closets on the conservancy system, and for the disposal of refuse and excrement under sanitary conditions. *But however carefully closets on the conservancy system are emptied and cleansed, the conditions associated with them in Urban communities are generally a menace to the public health, and especially the health of children ; and the Board would urge that, wherever a sufficient sewer and water supply are available, fresh water closets supplied with flushing cisterns should be substituted for existing closets on the conservancy system, and provided in all new buildings.* In connection with this matter attention should be drawn to the provisions of Section 39 of the Public Health Acts Amendment

Act, 1907. In the best administered districts conservancy closets and ashpits have given place to fresh water-closets, and movable ash-bins with covers, and house refuse is removed in properly covered carts by the Council's own workmen under the superintendence of the Surveyor at regular intervals, and never less than once a week. If the refuse is not burnt it should be disposed of in places remote from dwellings, and should be kept properly covered with earth. In many districts all refuse can be disposed of in a destructor.

"The Board would urge the Council to consider at an early date the question of taking such action as may be necessary and practicable in their district on the lines indicated in the preceding paragraph."

For years, one might almost say for centuries, it has been recognised that dirt breeds disease, but it is only in recent years that the method by which disease is bred by dirt has been recognised, viz., by means of flies. It is not at all improbable that other vermin, such as body and head lice, fleas and bugs will in the near future be proved to have their share in the propagation of various diseases, just in the way that it is now definitely known that Plague is conveyed from rats to human beings by fleas.

I am well aware that the present is a most inopportune time to advocate the expenditure of public money, but on the other hand there are occasions upon which expenditure becomes the truest economy, and money judiciously spent on safeguarding the public health is the most important of them.

The present is the time of all others to carry out improvements which have for their object the preservation of health, and more particularly the health of the infants of the nation.

The Birth-rate has been, as is well known, decreasing steadily for years, infantile mortality has not shown the same steady decrease as the general death-rate, and this in great measure is to be attributed to the insanitary conditions into which many of the infants are born.

For obvious reasons it is practically certain that during the continuance of the war, and for some time afterwards, there will be a much more marked lowering of the birth-rate, therefore it is all the more essential to do everything in our power to diminish infantile mortality and to remove all conditions which have a tendency to lower the health of infants and young children.

The effective removal and disposal of household refuse is probably one of the most essential, and, at the same time one of the most difficult problems which every Sanitary Authority has to face, because to be effective the efforts of the authority must be of little avail so long as the utter disregard of cleanliness of person, of premises, and of surroundings, is such a marked feature in many of our centres of population.

As a rule household refuse consists of all kinds of more or less combustible material, such as paper, rags, parts of vegetables, potatoe peelings, &c., and it is the decomposition of these which gives rise to such serious nuisance from smells, and in which flies breed and feed. If each household would see that all this combustible material was burnt in the kitchen fire every night, the dangers and the nuisance would be considerably reduced.

The receptacles for refuse are of two kinds, either a midden or ashpit, which in the majority of cases is a large brick chamber, sometimes roofed over, but more often not, and ashbins of various kinds, varying from an old box, barrel or pail, to the more rare sanitary galvanised iron bin with a lid.

If *all* combustible rubbish were burnt every night, the work of the authority would be reduced to a minimum, and the surroundings of many houses would be greatly improved.

The difficulties and dangers in a great many districts in this County are, however, considerably increased from the fact that there are so many houses not provided with water-closets, the most common conveniences in these districts being either earth or ash closets (in which it is quite the exception to see either earth or ashes used) or midden-privies, and when to the ordinary dry household refuse is added human excrement, the dangers to health are considerably enhanced.

It is in these districts that there is the greatest need for effective scavenging, but, unfortunately, it is in these same districts that scavenging is worst done. It is no unusual thing to be told—and from the appearance of things one can quite well believe it—that a midden privy is only emptied when it is full, which may be once every three or six months.

It is to be hoped that every Sanitary Authority will, before the hot weather starts, give the matter of scavenging and the removal and disposal of house refuse that attention which its important bearing on public health demands, and I think it would help materially if each Sanitary Authority published a small leaflet for house to house distribution throughout their districts, pointing out the dangers from uncleanliness, and allowing decomposable refuse to collect, and adding a request that all combustible refuse should be burnt every night.

In May, of the present year, the Local Government Board issued a return of Scavenging in Urban districts, and as many of the large villages in this County, although nominally in Rural districts have all the characteristics of Urban communities, without their compensating advantages, the following extract from the circular letter accompanying the return may be of interest, and is applicable.

> "The return shows in the Appendix what are the arrangements for the storage, collection and disposal of refuse in each Urban district, while the preliminary memorandum indicates in what respects defective arrangements may prejudice public health, and how these arrangements may be improved.
>
> "The Board trust that the Council will take into consideration at an early date the question whether any alteration is required in the present arrangements for storing, collecting and disposing of refuse in their district, and will endeavour to effect any improvement which may be necessary before the hot weather sets in. I am to point out that it is especially desirable at the present time, when so many districts are congested with troops and refugees, and when there are peculiar dangers of the spread of infectious disease, that sanitary authorities should do all that is in their power to prevent the retention of accumulations of refuse in the neighbourhood of dwellings, and generally to maintain an efficient service for dealing with house refuse.
>
> "In particular the Board would suggest that the Council should consider whether all or any of the following steps are necessary in regard to their district :—

1. To require a sanitary bin to be provided in connection with all new houses and buildings;

2. To encourage owners and occupiers of existing houses to provide covered sanitary bins in place of other refuse receptacles;

3. To undertake with their own staff the scavenging in the populated parts of the district, and to remove all refuse from these parts in properly covered carts at least once a week, especially during the summer;

4. Where no destructor is available, to avoid sending refuse out of the district in such a manner as to cause nuisance and danger to health, and where tips are used, to secure that they are as remote as possible from dwellings, and that the refuse is covered with earth and the tip fenced in."

In this connection Dr. Mc.Leish, in his report to the Cockermouth Rural District Council, says :—

> "Since the 9th March of this year, the household refuse of Flimby has been collected by an ash-cart. This has been a great improvement in this township, which has a population of 2,487. The refuse is no longer deposited on the beach, which formerly was one huge tip. This is one of the most satisfactory improvements in your district during the year."

I think it more than probable that we will learn some useful lessons in the removal and disposal of refuse from the excellent work that has been done in some of the large camps set up in different parts of the country for troops. Some of the methods employed are, I believe, most excellent, as well as economical, and will be applicable to many Rural communities.

NOTIFICATION OF BIRTHS ACT.

At a meeting of the Midwives Sub-Committee, held on October 16th, 1908, the question of the adoption of the Notification of Births Act was considered, and the following resolution was agreed to :—

> "That the County Council be recommended to adopt this Act within their area, at their Quarterly Meeting, to be held on the 3rd day of February, 1909, and that the necessary steps be taken to advertise such adoption in the local newspapers, and to obtain the sanction of the Local Government Board to the same."

This recommendation was accepted by the County Council, and the sanction of the Local Government Board applied for. The Board, however, replied to the effect that it was not desirable for the County Council to adopt the Act until ample opportunity had been given to District Councils to adopt it for their own areas.

The matter was, therefore, left in abeyance, and in the meantime the Act was adopted in the Boroughs of Workington, Whitehaven, and the Urban district of Penrith.

In my Quarterly Report to your Committee, dated 13th April, 1913, I said :—

> "In view of this persistently high mortality (infant), I would suggest that each District Council in whose area the Notification of Births Act is not in force, be written to, and asked to adopt it, and if they still refuse to do so, you make application to the Local Government Board to have the Act made operative over the whole County."

At your Meeting on the 19th April, 1913, the following resolution was passed :—

> "That the Clerk communicate with each District Council in the County, asking that the Notification of Births Act be put in force within their district, failing which this Committee recommends the County Council to put the Act in force for the County as a whole."

Replies from the District Councils were received, and were considered at your meeting on 19th July, 1913, and it was then decided to further consider the matter at your next meeting, and I was instructed to report further on the matter. As an outcome of your deliberations the following resolution was passed on the 13th October, 1913 :—

> "That the County Council be recommended to adopt the Notification of Births Act, 1907, for the County as a whole."

The County Council adopted this resolution at their meeting on 5th November, 1913.

The sanction of the Local Government Board was obtained after they were satisfied that the arrangements made for carrying on the work were satisfactory. The Act accordingly came into operation on the 1st July, 1914. The three districts which had already adopted the Act continuing to carry it out as before.

There is much misapprehension as to the scope and requirements of the Act, and as the main provisions are contained in Section 1, it is here reproduced :—

> " I. The provisions of this section shall have effect in the area of any local authority in which this Act is adopted by that authority in accordance with the provisions of this Act—
>
> (1) In the case of every child born in an area in which this Act is adopted it shall be the duty of the father of the child, if he is actually residing in the house where the birth takes place at the time of its occurrence, and of any person in attendance upon the mother at the time of, or within six hours after the birth, to give notice in writing of the birth to the medical officer of health of the district in which the child is born, in manner provided by this section.
>
> (2) Notice under this section shall be given by posting a prepaid letter or postcard addressed to the medical officer of health at his office or residence, giving the necessary information of the birth within thirty-six hours after the birth, or by delivering a written notice of the birth at the office or residence of the medical officer within the same time ; and the local authority shall supply without charge addressed and stamped postcards contain- the form of notice to any medical practitioner or midwife residing or practising in their area, who applies for the same.

(3) Any person who fails to give notice of a birth in accordance with this section shall be liable on summary conviction to a penalty not exceeding twenty shillings: Provided that a person shall not be liable to a penalty under this provision if he satisfies the court that he had reasonable grounds to believe that notice had been duly given by some other person.

(4) The notification required to be made under this Act shall be in addition to and not in substitution for the requirements of any Act relating to the registration of births; and any registrar of births and deaths whose sub-district or any part thereof is situate within any area in which this Act is adopted shall at all reasonable times have access to notices of births received by the medical officer of health under this Act, or to any book in which those notices may be recorded, for the purpose of obtaining information concerning births which may have occurred in his sub-district.

(5) This section shall apply to any child which has issued forth from its mother after the expiration of the twenty-eighth week of pregnancy, whether alive or dead.

(6) Any expenses incurred by a local authority in the execution of this Act shall be paid as part of the expenses of that authority in the execution of the Acts relating to public health, and in the case of a rural district council shall be paid as general expenses."

Sub-section (1) it will be noticed, states that the birth is to be notified to the medical officer of health of the district, but Section 2 (4) (*a*) provides that: where the Act is adopted by the Council of a County, the County Medical Officer of Health shall be substituted for the Medical Officer of Health of the district.

The Act, as it is at present, has never been entirely satisfactory, and as a new Bill—introduced by the President of the Local Government Board—is now before Parliament, it is to be hoped that steps will be taken to so modify the existing Act as to make its working easier and more satisfactory.

In moving the second reading of the Notification of Births (Extension) Bill, Mr Long, the President of the Local Government Board, said :—

> "This Bill is not a war emergency Bill, but it is to amend ordinary legislation, which is as necessary as ever in the midst of a great war. It is a permissive Act, and local authorities have adopted it to a great extent. The present Bill proposes to extend the powers to make the Act universal throughout the country, and to effect certain other changes."

It will be noticed that Section 1 (1) of the Act puts the onus of notifying the birth on the father of the child, if he is actually residing in the house when the birth takes place, at the time of its occurrence, *and* on any person in attendance on the mother at the time of, or within six hours after the birth.

In effect this means that in the large majority of cases the notification must be, and is sent in, by the medical man in attendance, and although non-notification renders those who are supposed to notify liable to a penalty not exceeding twenty shillings (Sec. I. (3), the Act does not make provision for the payment of any fee to medical practitioners for their notifications.

This is the only Act in which no provision is made for a fee for notification.

Until the Act has been in operation for a complete year, I have no means of knowing what proportion of births are notified, but I know that a large number are not notified.

Section I. (4) makes it clear that notification is in addition to and not in substitution for the requirements of any Act relating to registration of Births, and that any registrar of births and deaths has the right at all reasonable times to see the records of notified births kept by the medical officer of health, and to get such information from them as is required. No such right to see the registrar's books is given to the medical officer of health or any official of the local Authority, and the only way in which this information can be obtained is by the local authority paying a fixed fee for each birth registered, although for the proper working of the Act, the information from the registrar to the medical officer of health is necessary.

It is to be hoped that the "certain other changes," which the President of the Local Government Board foreshadows in the new Bill, will remove these difficulties.

Since the adoption of the Act, on the 1st July, 1,752 births have been notified, and 1,722 of these have been visited by the Health Visitors. Altogether 7,639 visits have been paid, I think a very creditable result in so short a time.

The Health Visitors report that on the whole they have been very well received by the parents, and Miss March draws attention to the fact that many people wonder why their babies are not visited when others in the same street or village are ; this, of course, is accounted for by non-notification.

Nurse Jones draws attention to the common use of long-tubed bottles, and to the fact that mothers object to the boat-shaped bottle, because they are obliged to hold the baby while it has its food.

Nurse Robinson finds that many mothers, who were opposed to her visits at first, now welcome her, and look forward to her visits.

Nurse Phillips, in her area, finds a great many babies fed on bread, porridge and arrowroot, and in many cases she has succeeded in getting milk substituted.

Nurse Worthington also draws attention to the common use of the long-tubed bottle. She has induced several mothers to give them up in favour of the boat-shaped. She also notices the very common use of the dummy teat.

Nurse Woods reports that she has generally been well received, and her visits welcomed, but she has experienced the old difficulty of trying to convince the grand-mothers that their ideas on infant rearing are wrong.

Although primarily the Health Visitors' work is concerned with infants, it is hoped, and expected, that her scope will be extended to the broader and equally important work of giving advice to the expectant mother.

I had hoped, and probably but for the war, the work in this direction would have been considerably extended to include maternity centres and infant welfare work in general, but under existing circumstances this is quite impossible, and must be deferred. I hope, however, that the work so well begun by our Health Visitors will continue, and that it is our intention to pay periodic visits to all those children who come under notice through the Notification of Births Act, not only until they are a year old, but so far as is possible to keep them under observation till they are of school age, and then they come under the care of the School Medical Service.

HOUSING.

The housing question was fully dealt with in my last report. when a review of the conditions in each district was given. As no substantial change has taken place during the year, it is unnecessary now to do more than give a record of the work done in each district under the Housing (Inspection of District) Regulations, 1910 :—

	Number of dwellings inspected.	Number of dwellings unfit for habitation.	Number of representations made.	Number of closing orders made.	Number of dwellings in which the defects were remedied without making of closing orders.	Number of dwellings made habitable after closing orders.
Workington	42	27	27	27	—	9
Whitehaven	342	4	4	4	—	1
Arlecdon and Frizington	No information.					
Aspatria	190	—	—	—	17	—
Cleator Moor	63	63	*	—	32	—
Cockermouth	135	7	5	—	11	—
Egremont	No information.					
Harrington	41	7	1	1	34	—
Holme Cultram	9	—	—	—	9	—
Keswick	156	—	—	1	53	—
Maryport	*	11	No information.			
Millom	No information.					
Penrith	57	—	—	—	38	3
Wigton	No information.					
Alston	42	1	—	—	—	—
Bootle	62	37	6	2	28	—
Brampton	40	5	—	—	12	—
Carlisle						
Cockermouth	526	5	5	4	119	1
Longtown	58	*	*	11	—	—
Penrith	404	—	—	—	80	—
Whitehaven	295	3	3	—	2	—
Wigton	315	4	—	4	—	1

* Not stated.

MILK SUPPLY.

A summary of the reports on the Dairies, Cowsheds and Milk-shops is given in the second part of this report.

A large amount of milk is sent from this County into the City of Newcastle-on-Tyne.

SLAUGHTER HOUSES.

In the district reports these premises are, as a rule, commented on favourably. Attention, however, is again drawn to the difficulty of adequate supervision over the meat supply, owing to the impossibility of inspection, and several of the medical officers of health advocate the erection of a public abattoir.

FACTORIES AND WORKSHOPS.

These appear to have been regularly inspected in all the districts.

In some cases the statistical tables issued by the Secretary of State for inclusion in the annual reports are not included.

SALE OF FOOD AND DRUGS ACTS.

These Acts are carried out by the Police, the following Report being given by the County Analyst :—

" Chemical Laboratory,
40 Lowther Street,
Whitehaven,
4th January, 1915.

Gentlemen,

" During the year 1914, I have received from the Food Inspectors 314 samples for analysis under this Act. No samples were sent for analysis by private purchasers or by Sanitary Authorities.

" Of these 314 samples, 18 were found to be adulterated or below the legal standard. Calculated to percentages this is equal to 5.7 per cent., and compares very favourably with the previous year, when the percentage of total adulteration was 7.3.

" The adulterated articles were milk and spirits.

" *Milk.*—177 samples taken from milk offered for sale, and 8 'appeal to the cow' samples were analysed, and 16 of the 177 samples gave analytical results below limits for genuine milk fixed by the Board of Agriculture. This is equal to 9.0 per cent.,, and shows that the milk, sold in 1914 has been distinctly superior than in 1913 when the percentage of abnormal samples was 11.6. Ten of the 16 samples were so little below the Board of Agriculture's limit, or were shown by the 'appeal to the cow' to be genuine milks, that no further action than cautioning the vendors was taken.

" The average composition of these 185 samples was :

Milk-fat	3.53
Non-fatty Solids	8.92
Water	87.55
	100.00

" The average for each Quarter of 1914, is :—

	Jan. to Mar. 44 *samples.*	*Ap'l to June.* 47 *samples.*	*July to Sept.* 39 *samples.*	*Oct. to Dec.* 55 *samples.*
Milk-fat	3.42	3.33	3.40	3.89
Non-fatty Solids	8.94	8.92	8.80	8.94
Water	87.64	87.75	87.80	87.17
	100.00	100.00	100.00	100.00

" *Spirits.*—Sixteen samples of spirits were analysed during the year. Only two of these were found to be diluted below the legal limit.

" *Preserved Cream.*—Seven samples were examined. All were found to contain more than 35 per cent. of milk-fat, and less than the 0.5 per cent. boric acid, as stated upon their labels.

" They therefore all complied with the Public Health (Milk and Cream) Regulations, 1912.

" I append a list of all the articles analysed during the year under the Sale of Food and Drugs Acts."

I am, Gentlemen,
Your obedient servant,
ROBERT HELLON, Ph.D., F.I.C.,
County Analyst.

ARTICLES.

Examined under the Sale of Food and Drugs Acts during the Year 1914.

Milk	185	samples
Butter	20	,,
Spirits	16	,,
Pepper	9	,,
Coffee	8	,,
Sugar	8	,,
Cream	7	,,
Lard	7	,,
Tea	7	,,
Bread	6	,,
Cheese	5	,,
Flour	4	,,
Loose Cocoa	4	,,
Port Wine	3	,,
Vinegar	3	,,
Margarine	2	,,
Cocoa	2	,,
Confectionery and Jam	2	,,
Baking Powder	2	,,
Rice	2	,,
Tapioca	2	,,
Oatmeal	2	,,
Mustard	1	sample
Sago	1	,,
Cornflour	1	,,
Arrowroot	1	,,
Arrowroot Biscuit	1	,,
Ground Ginger	1	,,
Tartaric Acid	1	,,
Golden Syrup	1	,,
	314	

WORKINGTON (BOROUGH).

CHARLES S. THOMSON, M.D., D.P.H.,

MEDICAL OFFICER OF HEALTH.

Vital Statistics.

	1914.	1913.
Population	26,000	25,600
Birth-rate	26.9	25.5
Death-rate	13.4	13.08
Zymotic death-rate ..	0.96	0.77
Phthisis death-rate ..	1.1	0.7
Total Tuberculosis death-rate.. ..	1.6	1.2
Respiratory diseases death-rate.. ..	1.6	2.2
Infant mortality rate per 1,000 births ..	99	126

Infectious Diseases Cases (and Deaths)

	1914.	1913.
Total notifications ..	208	140
Smallpox	Nil.	Nil.
Scarler Fever ..	67	32
Diphtheria	14	25
Fevers (Enteric, &c.) ..	40	9
Puerperal Fever ..	2	Nil.
Pulmonary Tuberculosis	45	37
Cases treated in Hospital	82	44
Measles	(Nil.)	(1)
Whooping Cough ..	(Nil.)	(Nil.)
Diarrhœa	(Nil.)	(1)

WATER SUPPLY—

From Lake Crummock. Is abundant and pure.

SEWERAGE—

Sewage is conveyed to the sea by six main outlets.

SCAVENGING—

HOUSING—

Under the Housing (Inspection of District) Regulations, 42 houses were inspected, 27 were considered unfit for habitation, and 27 representations were made to the local authority, and 27 closing orders were made. 9 were improved after the making of a closing order.

NUISANCES—

553 nuisances have been dealt with. 369 informal and 24 formal notices have been served.

FACTORIES AND WORKSHOPS—

240 inspections have been made, 10 notices served.

Dr. Thompson's report this year is short, and does not give an adequate adea of the amount of work that has been done by himself and his staff, owing to the fact that he had to leave somewhat hurriedly for army service. The report, however, contains a valuable "special report" on the outbreak of enteric fever in the Borough.

WHITEHAVEN (BOROUGH).

J. B. FISHER, M.D., D.P.H., MEDICAL OFFICER OF HEALTH.

Vital Statistics,	1914.	1913.
Population	19,300	19,200
Birth-rate	30.6	28.5
Death-rate	16.3	16.8
Zymotic death-rate	1.5	1.3
Phthisis death-rate	0.9	1.3
Total Tuberculosis death-rate	1.3	2.1
Respiratory diseases death-rate	3.3	3.1
Infant mortality rate per 1,000 births	127	127

Infectious Diseases Cases (and Deaths)	1914.	1913.
Total notification	114	141
Smallpox	Nil.	Nil.
Scarlet Fever	22	16
Diphtheria	22	1
Fevers (Enteric, &c.)	*15	12
Puerperal Fever	Nil.	Nil.
Pulmonary Tuberculosis	24	63
Cases treated in Hospital	43	25
Measles	(Nil.)	(10)
Whooping Cough	(11)	(Nil.)
Diarrhœa	(11)	(14)

*7 cases of Typhus, 7 of Enteric, 1 Continued Fever.

WATER SUPPLY—

Not mentioned.

SEWERAGE—

Not mentioned.

SCAVENGING—

Not mentioned.

HOUSING—

(*a*) New houses : 5 have been certified as fit for occupation, plans have been passed for 75 houses during the year. Competitive designs have been invited for the laying out of the Coach Road site, and the erection thereon of some 80 houses, which it is proposed to build in substitution for the houses that will be demolished or done away with as separate dwellings by the making of two or three tenements into one house when the area selected for improvement comes to be dealt with.

(*b*) Insanitary property :—Under the Housing (Inspection of District) Regulations, 342 houses were inspected, 4 were found unfit for human habitation, representations were made to the Sanitary Authority with respect to 4 houses, and closing orders were made. One house was put into a fit state for human habitation after the making of a closing order ; two houses were demolished.

282 notices to remedy defects were served ; 163 of these notices were complied with, leaving 119 not fully complied with at the end of the year.

These 282 notices refer to 827 defects. The work was in hand in 36 houses at the end of the year, in 51 some portion of the work had been deferred. In 32 cases nothing had been done, but Dr. Fisher adds : " some of these notices had only been served towards the end of the year.

Nuisances—

125 written notices were served for the abatement of nuisances, 110 were complied with, 18 statutory notices were served, and 12 of these were complied with.

Dairies, Cowsheds and Milkshops—

22 registered cowsheds, 13 owners of dairy cattle owning 194 cows. Four notices requiring the limewashing of cowsheds were served. The cowsheds have generally been satisfactory. The cattle are inspected by a veterinary surgeon.

There are no dairies or milk-shops, milk being supplied direct from carts.

Slaughter Houses—

11 regularly visited, but the Medical Officer of Health points out that "it is impossible for him (the Sanitary Inspector) to visit each at the time of killing, seeing that the killing days are usually the same in all, and the slaughter houses are situated in different parts of the town at a considerable distance from each other.

Common Lodging Houses (4)—

They have been regularly inspected, and found to be kept in a satisfactory condition.

Food Inspection—

7 whole carcases of beef and portions of 7 others were condemned as unfit for human food. 27 stones of haddock were also condemned.

Offensive Trades—

Not mentioned.

Factories and Workshops—

Inspections have been made of the 7 factories, 92 workshops and 5 workplaces. The only defects found were want of cleanliness in 2 cases, both of which were remedied.

ARLECDON AND FRIZINGTON.

JOHN CLARK, M.D., F.R.C.S., Ed.,
Medical Officer of Health.

Vital Statistics.

	1914.	1913.
Population	5,180	5,180
Birth-rate	32.6	27.4
Death-rate	16.0	13.3
Zymotic death-rate ..	0.7	0.7
Phthisis death-rate ..	0.9	1.5
Total Tuberculosis death-rate.. ..	1.3	1.7
Respiratory diseases death-rate.. ..	2.7	1.9
Infant mortality rate per 1,000 births ..	94	91

Infectious Diseases Cases (and Deaths).

	1914.	1913.
Total notifications ..	48	49
Smallpox	Nil.	Nil.
Scarlet Fever ..	14	18
Diphtheria	5	7
Fevers (Enteric, &c.)	Nil.	2
Puerperal Fever ..	Nil.	Nil.
Pulmonary Tuberculosis	5	7
Cases treated in Hospital	8	4
Measles	(Nil.)	(Nil.)
Whooping Cough ..	(3)	(Nil.)
Diarrhœa	(1)	(3)

Water Supply—

The supply is an abundant and constant one from springs in the Cogra Valley. There are no houses above the springs from which the water is taken, and the Medical Officer of Health considers there is practically no risk of contamination.

Sewerage—

The system is stated to be satisfactory. The system of disposal being by means of precipitation and settling tanks followed by broad irrigation.

Scavenging—

There are no ashpits. House refuse is removed regularly by men employed by the Council to a tip some distance from the town. There are 930 water closets, and about 45 earth closets. No earth closets have been converted into water closets.

Housing—

Nuisances—

Dairies, Cowsheds and Milkshops—

The cowsheds and dairies are stated to be as a rule generally satisfactory. There are no milk-shops.

A special report has been made on these premises. The cows in the district are " well looked after, being well groomed, and the farmers carry out great care in connection with milking."

Slaughter Houses—

" They are clean, well kept, and well lime washed."

The number of slaughter houses is not stated. They are all situated too near dwelling houses.

The Medical Officer of Health reports that :—" One of the slaughter houses is too small for the work carried on, and is not sufficiently lighted and ventilated ; these facts were pointed out two years ago, and definite recommendations made....but nothing has yet been done.

Common Lodging Houses—

None in the district.

Food Inspection—

No diseased meat was brought to the notice of the Medical Officer of Health.

Offensive Trades—

None.

Factories and Workshops—

54 inspections of the 18 factories and 36 workshops were made. No defects were found.

ASPATRIA.

W. PERRY BRIGGS, L.R.C.P., &c.
Medical Officer of Health.

Vital Statistics.	1914.	1913.
Population	3,420	3,420
Birth-rate	26.6	26.0
Death-rate	9.6	13.7
Zymotic death-rate	Nil.	0.2
Phthisis death-rate	0.6	1.4
Total Tuberculosis death-rate	0.6	2.0
Respiratory diseases death-rate	1.4	1.6
Infant mortality rate per 1,000 births	55	89

Infectious Diseases Cases (and deaths):	1914.	1913.
Total notifications	19	38
Smallpox	Nil.	Nil.
Scarlet Fever	8	28
Diphtheria	3	1
Fevers (Enteric, &c.)	Nil.	Nil.
Puerperal Fever	Nil.	Nil.
Pulmonary Tuberculosis	5	5
Cases treated in Hospital	(no hospital)	
Measles	(Nil.)	(1)
Whooping Cough	(Nil.)	(Nil.)
Diarrhœa	(Nil.)	(Nil.)

WATER SUPPLY—

Is from the Overwater gravitation scheme, is of excellent quality, and there has never been any scarcity.

SEWERAGE—

The new sewage system is now in working order. There are 6¾ miles of pipes conveying sewage to the disposal works near the south-west boundary of the district. "The sewage, after passing through screening chambers, detritus and sedimentation tanks, is distributed intermittently over a percolating filter by means of three automatic revolving distributors. A channel is laid round the filter, and conveys the filtrate into a humus tank, after which it passes without further treatment into an adjoining watercourse. Provision is made for the treatment of storm water on a separate filter, and also for the disposal of sludge.

SCAVENGING—

Domestic refuse is collected twice weekly. Dr. Briggs draws attention to the unsuitable receptacles in use, and recommends metal ones with lids. The refuse tips are outside the town. Two privies with fixed, and 367 with movable receptacles, have been converted into water closets.

Dr. Briggs remarks:—"In a short time I trust the remainder will be converted and the necessity for the continuation of the disgusting method of excrement removal by the night-cart cease to exist."

There are now 405 water closets, 251 privies with movable and 17 with fixed receptacles.

HOUSING—

(*a*) New houses: 20 new houses under the housing scheme are in process of erection; (*b*) insanitary property: under the Housing (Inspection of District) Regulations 190 houses were inspected, none were considered to be unfit for habitation, and no closing orders were made. One house in King Street, which was previously condemned as unfit for human habitation is, however, still occupied. The demand for houses is great. Dr. Briggs is of opinion that: "most of the inhabitants are well housed in well-ventilated, roomy houses, with plenty of garden space, but in many of the older type of houses there is undoubtedly over-crowding, which is incapable of remedy till the provision of houses is greater than at present."

There are 24 back-to-back houses in some of which there is overcrowding.

NUISANCES—

252 notices have been served to abate nuisances. 17 houses with water closets draining into cesspools have been connected to the sewers, and the cesspools done away with. 17 cases of faulty ventilation, defective paving of yards, and insufficient drainage have been remedied without notice, as well as 4 cases of defective eaves gullies.

DAIRIES, COWSHEDS AND MILK-SHOPS—

Five registered sellers of milk.

The cowsheds are described as far from ideal, defects of lighting, ventilation and insufficient air space being common. The drainage in some instances has been improved since the completion of the sewage system.

The floors of most of the cowsheds are of pervious material, and become readily saturated.

SLAUGHTER HOUSES—

Five registered. Inspections have been frequent, and they appear to have been kept in good order, but some are stated to be too near dwelling houses. One whole carcase and part of another were found tuberculous.

COMMON LODGING HOUSES—

None.

OFFENSIVE TRADES—

None.

FACTORIES AND WORKSHOPS—

There are 30 workshops, and to these 120 inspections were made as well as 36 to factories. Four defects of ventilation were found, and remedied without notice.

CLEATOR MOOR.

JOHN CLARK, M.D., F.R.C.S., Ed.,

Medical Officer of Health.

Vital Statistics.

	1914.	1913.
Population	8,300	8,300
Birth-rate	29.7	29.5
Death-rate	16.3	14.5
Zymotic death-rate	0.8	0.8
Phthisis death-rate	0.9	1.2
Total Tuberculosis death-rate	1.8	1.8
Respiratory diseases death-rate	2.5	1.8
Infant mortality rate per 1,000 births	101	138

Infectious Diseases Cases (and deaths)

	1914.	1913.
Total notifications	105	61
Smallpox	Nil.	Nil.
Scarlet Fever	52	4
Diphtheria	4	Nil.
Fevers (Enteric, &c.)	Nil.	1
Puerperal Fever	Nil.	1
Pulmonary Tuberculosis	19	25
Cases treated in Hospital	16	1
Measles	(Nil.)	4
Whooping Cough	(3)	(1)
Diarrhœa	(2)	(2)

Water Supply—

Is derived from springs, is a constant one, and so far has always been abundant. The water is described as of good quality, and well adapted for domestic purposes.

Sewerage—

The sewage is treated in settling tanks, and with lime. The system is said to be satisfactory.

Scavenging—

There are no ashpits. House refuse is removed daily, in carts belonging to the Council, to tips at a distance.

Housing—

(*a*) New houses :—None appear to have been built during the year. (*b*) Insanitary property :—Under the Housing (Inspection of Districts) Regulations, 63 houses were inspected, 63 were in a state so dangerous or injurious to health as to be unfit for human habitation.

The number of representations made to the sanitary authority is not stated, but no closing orders were made, in 32 of the houses, however, the defects were remedied without making a closing order. 30 still remain unfit for habitation, and one which has stood empty for years the Medical Officer of Health considers ought to be demolished. There is great overcrowding of houses on area, and there is a considerable number of back-to-back houses. A special report was made on these houses, and recommendations made, but the Medical Officer of Health regrets that " very few improvements have been carried out since."

NUISANCES—

43 nuisances have been dealt with and remedied, 20 in connection with water closets, and 20 with insanitary yards.

DAIRIES, COWSHEDS AND MILK-SHOPS—

A special report was issued in July.

They were all then stated to be satisfactory.

No milk-shops in the district.

SLAUGHTER HOUSES—

A special report was made on these. They are all well-lighted and ventilated.

COMMON LODGING HOUSES—

(1), which is daily visited by the inspector.

FOOD INSPECTION—

Parts of four carcases were destroyed, being affected with tuberculosis.

The market is visited regularly.

OFFENSIVE TRADES—

Not mentioned.

FACTORIES AND WORKSHOPS—

124 inspections have been made. Nine written notices served to abate defects—want of cleanliness, 6 ; overcrowding, 1 ; want of drainage of floor, 1 ; insufficient sanitary accommodation, 1. All were remedied.

COCKERMOUTH.

D. J. MC.LEISH, M.A., B.Sc., M.D., D.P.H.,
MEDICAL OFFICER OF HEALTH.

Vital Statistics.	1914.	1913.
Population	5,153	5.167
Birth-rate	25.2	20.9
Death-rate	16.4	14.1
Zymotic death-rate ..	1.2	0.5
Phthisis death-rate ..	0.8	1.5
Total Tuberculosis death-rate.. ..	0.9	1.7
Respiratory diseases death-rate ..	2.3	1.9
Infant mortality rate per 1,000 births ..	127	86

Infectious Diseases Cases (and deaths)	1914.	1913.
Total notifications ..	31	21
Smallpox	Nil.	Nil.
Scarlet Fever ..	7	4
Diphtheria	5	5
Fevers (Enteric, &c.)	Nil.	Nil.
Puerperal Fever ..	Nil.	Nil.
Pulmonary Tuberculosis	14	7
Cases treated in Hospital	(no hospital)	
Measles	Nil.	(2)
Whooping Cough ..	(5)	(Nil.)
Diarrhœa	(1)	(1)

WATER SUPPLY—

Is by gravitation from Crummock Lake. Is ample in quantity, and very pure. The supply is constant. Some trouble has been experienced by corrosion of the pipes.

SEWERAGE—

A report on the sewage system has been given to the Council by Mr. Beswick. This showed that there were many defects, and that the outfall works were quite inadequate.

River water had been gaining access to the sewers, so that there was at the outfall works more than three times the liquid than could be accounted for by the water supply to the town and the rain water.

The Council have decided to lay an accessory sewer, but the Surveyor does not think this will abate the pollution of the river, and Dr. Mc.Leish is evidently of the same opinion.

SCAVENGING—

House refuse is collected in uncovered carts twice weekly. "These carts should be covered."

There are no fixed receptacles for collecting refuse, but the Medical Officer of Health says :—" There are many unsuitable movable receptacles used for putting out the refuse. This is all the more objectionable inasmuch as the majority of the houses have no back doors or outhouses, and consequently the refuse must be kept in these receptacles indoors for several days."

HOUSING—

(*a*) New houses :—No new houses appear to have been built ; (*b*) insanitary property :—Under the Housing (Inspection of District) Regulations, 130 houses have been completely and 5 (untenanted) partly inspected—only 23 of these houses were without defect. 76 preliminary notices were served, and as a result 9 defects were completely and 2 partially remedied, whilst 65 remained defective. Five representations were made to the Sanitary Authority, but no closing orders were issued, 2 houses were, however, closed by the owner. Insufficient closet accommodation, bad ventilation and dampness seem to be the main defects.

NUISANCES—

190 nuisances were reported to the Council, 188 were attended to. 43 notices were served and complied with.

Dairies, Cowsheds and Milk-shops—

The cows are inspected by a Veterinary Surgeon. No disease has been reported.

The cowsheds are not all that could be desired. Drainage in some is not efficient, owing to the floors being cobbled. In some cases the ventilation provided is not properly used. In other cases manure is not sufficiently often removed The cows in several cases are in a dirty condition.

Slaughter Houses—

One small public slaughter house. It is a back-to-back building without through ventilation. Little slaughtering is done here. Most of the slaughtering is done in private slaughter houses (5), situated in a closely populated part of the town, and too near dwelling houses.

Common Lodging Houses—

(2). Regularly inspected. " One of these buildings," Dr. Mc.Leish says, " is getting into a ruinous condition, and unless it is looked better after will soon be unfit to be a lodging house."

Food Inspection—

No tuberculous meat has been condemned during the year. Dr. Mc.Leish expresses the opinion that no efficient inspection of meat can be carried out because slaughtering is done at six places and at various times ; he expresses the opinion, however, that " if any carcases had been tuberculous they would have been surrendered under the insurance plan to which all the butchers subscribe."

Offensive Trades—

(9). Three fellmongers, but no nuisance has arisen from these. Three knackers and bone-boilers. One established during the year is well-equipped, and gives rise to no nuisance. The other is not so well-equipped, but little complaint has been received about it, although the drainage has given rise to nuisance, and has polluted the stream. The licence has not been removed.

The third knacker's yard is well away from the town. One gut-scrapers business in a thickly populated neighbourhood. Although the Medical Officer of Health advised that the licence be not renewed, his advice was not followed. The smell from this is a great nuisance.

Two tallow melters' business, these like the last mentioned, although kept clean, give rise, from the nature of the business, to offensive smells, and it is suggested should be outside the town.

FACTORIES AND WORKSHOPS—

44 inspections have been made, 5 defects found, and 1 remedied.

EGREMONT.

EDWARD A. BRAITHWAITE, M.D.

MEDICAL OFFICER OF HEALTH.

Vital Statistics.

	1914.	1913.
Population	6,305	6,305
Birth-rate	28.2	29.6
Death-rate	17.4	16.4
Zymotic death-rate ..	1.7	1.1
Phthisis death-rate ..	1.7	1.5
Total Tuberculosis death-rate.. ..	2.3	2.0
Respiratory diseases death-rate.. ..	3.4	3.3
Infant mortality rate per 1,000 births ..	89	139

Infectious Diseases Cases (*and deaths*)

	1914.	1913.
Total notifications ..	30	48
Smallpox	Nil.	Nil.
Scarlet Fever ..	4	5
Diphtheria	Nil.	4
Fevers (Enteric, &c.)	2	1
Puerperal Fever ..	Nil.	Nil.
Pulmonary Tuberculosis	10	18
Cases treated in hospital	6	3
Measles	(Nil.)	(2)
Whooping Cough ..	(7)	(Nil.)
Diarrhœa	(4)	(Nil.)

WATER SUPPLY—

Is described as excellent for all purposes, constant in supply, and more than adequate.

SEWERAGE—

Most of the district is sewered. All the systems are effectual, and are up-to-date.

Disposal is by broad irrigation.

SCAVENGING—

Is done daily. Refuse is collected in ashbins—whether movable or not is not stated, and removed by the Council's men.

HOUSING—

Number of houses inspected, 300. Number of notices served to remedy defects, 271. Number of notices complied with not ascertained. No closing orders made.

NUISANCES—

The number of nuisances dealt with is not stated, nor is the number of notices served stated.

DAIRIES, COWSHEDS AND MILK-SHOPS—

22 have been inspected and found clean.

SLAUGHTER HOUSES—

Number not stated. Stated to be satisfactory.

COMMON LODGING HOUSES—

(2). Both kept in good order.

FOOD INSPECTION—

Nothing stated beyond the fact that there were no complaints.

OFFENSIVE TRADES—

One blood and bone boiler. No nuisance has arisen.

FACTORIES AND WORKSHOPS—

(46). Have been inspected.

HARRINGTON.

GEORGE R. CULLIN, L.R.C.S. & P., ED., &C.

MEDICAL OFFICER OF HEALTH.

Vital Statistics.

	1914.	1913.
Population	4,520	4,460
Birth-rate	26.3	28.9
Death-rate	11.5	13.4
Zymotic death-rate ..	0.2	1.1
Phthisis death-rate ..	Nil.	0.2
Total Tuberculosis death-rate.. ..	0.4	1.1
Respiratory diseases death-rate.. ..	1.7	2.0
Infant mortality rate per 1,000 births ..	101	93

Infectious Diseases Cases (and deaths)

	1914.	1913.
Total notifications ..	20	18
Smallpox	Nil.	Nil.
Scarlet Fever ..	5	5
Diphtheria	6	4
Fevers (Enteric, &c.)	1	Nil.
Puerperal Fever ..	1	Nil.
Pulmonary Tuberculosis	3	4
Cases treated in Hospital	6	4
Measles	(Nil.)	(4)
Whooping Cough ..	(Nil.)	(Nil.)
Diarrhœa	(Nil.)	(Nil.)

WATER SUPPLY—

Is derived from Crummock Lake through the Workington mains to Stainburn, from whence it is pumped to various small reservoirs in the district. Difficulty has been found in supplying some of the higher parts of the district, in spite of laying more mains and scraping existing ones. In the town of Harrington the supply seems to be good, but in other parts the Medical Officer of Health says :—" The supply is both at times intermittent, bad, and in some cases non-existent.

This matter has been considered by the District Council, and they have under consideration a new supply by gravitation.

SEWERAGE—

The main outlet discharges into the sea. Dr. Cullin thinks " the time has come for the Council to consider the question of draining the whole village also into the sea."

SCAVENGING—

This is done by contract, and " is as well done as the infinite variety of utensils, used as pails for each house, will allow."

HOUSING—

(*a*) New Houses :—Plans for 25 at Lowca have been passed. (*b*) Insanitary Property :—Under the Housing Inspection of District) Regulations, 41 houses were inspected, 11 were regarded as unfit for habitation, and 1 representation was made to the Sanitary Authority. One Closing Order was made, 34 houses had the defects remedied without making a Closing Order. The chief defects noted were in respect of water supply, closet accommodation, want of light and ventilation, dampness, &c.

NUISANCES—

79 have been found and dealt with. 36 informal and 2 statutory notices were sent. Verbal instructions were given in the remainder.

DAIRIES, COWSHEDS AND MILK-SHOPS—

15 registered. The dairies are well kept, but the cowsheds " as well as the buildings will allow." Two farms from which milk was got have been put into a more satisfactory condition.

SLAUGHTER HOUSES—

Two private slaughter houses. Several nuisances were reported and dealt with.

Common Lodging Houses—

None.

Offensive Trades—

None.

Food Inspection—

Not mentioned.

Factories and Workshops—

Four bakehouses, 5 workshops, and 6 workrooms. These have all been inspected. Only minor defects found and remedied.

HOLME CULTRAM.

CHARLES CRERAR, M.B., C.M.

Medical Officer of Health.

Vital Statistics.

	1914.	1913.
Population	4,537	4,523
Birth-rate	19.6	20.7
Death-rate	13.0	12.4
Zymotic death-rate . .	0.4	0.2
Phthisis death-rate . .	0.2	0.6
Total Tuberculosis death-rate	0.8	1.3
Respiratory diseases death-rate	1.7	1.1
Infant mortality rate per 1,000 births . .	45	138

Infectious Diseases Cases (and deaths)

	1914.	1913.
Total notifications . .	28	22
Smallpox	Nil.	Nil.
Scarlet Fever . .	2	2
Diphtheria	18	3
Fevers (Enteric, &c.)	Nil.	Nil.
Puerperal Fever . .	1	Nil.
Pulmonary Tuberculosis	3	9
Cases treated in Hospital	10	2
Measles	(Nil.)	(Nil.)
Whooping Cough . .	(1)	(1)
Diarrhœa	(Nil.)	(Nil.)

Water Supply—

The urban part of this district—Silloth, Green Row, Skinburness, and West Silloth—is supplied by gravitation, from a reservoir at Uldale by the Aspatria and Silloth Water Board.

This supply was extended to Blitterlees area during the year, and to some of the larger farms. This supply is satisfactory.

The rest of the district is supplied from shallow wells, and is not satisfactory.

Sewerage—

Silloth is the only part of the district which possesses a modern sewerage system.

Scavenging—

In the urban part of the district covered bins are used, and the contents removed by contract.

HOUSING—

(*a*) New Houses :—4 new houses are in course of erection at Green Row. (*b*) Insanitary Property :—Under the Housing (Inspection of District) Regulations, 9 houses were inspected. No house was considered unfit for habitation, and, of course, no representations were made. The defects found were in respect of lighting, ventilation, dampness or cleanliness, and were remedied.

NUISANCES—

Not mentioned.

DAIRIES, COWSHEDS AND MILK-SHOPS—

No dairies. 7 milk-sellers. All the cowsheds are reported as being satisfactory.

SLAUGHTER HOUSES—

Number not stated. Inspected and found in a clean state.

COMMON LODGING HOUSES—

None.

FOOD INSPECTION—

No unsound food found.

OFFENSIVE TRADES—

None.

FACTORIES AND WORKSHOPS—

40 inspections made, no defects noted.

KESWICK.

J. R. BURNETT, M.D., &c., MEDICAL OFFICER OF HEALTH.

Vital Statistics.

	1914.	1913.
Population	4403	4,403
Birth-rate	17.7	15.8
Death-rate	8.8	13.1
Zymotic death-rate . .	0.2	0.4
Phthisis death-rate . .	0.2	0.2
Total Tuberculosis death-rate. . . .	0.2	0.4
Respiratory diseases death-rate. . . .	1.3	2.0
Infant mortality rate per 1,000 births . .	38	43

Infectious Diseases Cases (*and deaths.*

	1914.	1913)
Total notifications . .	16	35
Smallpox	Nil.	Nil.
Scarlet Fever . .	2	24
Diphtheria	2	4
Fevers (Enteric, &c.)	Nil.	Nil.
Puerperal Fever . .	Nil.	Nil.
Pulmonary Tuberculosis	2	6
Cases treated in Hospital	2	27
Measles	(Nil.)	(1)
Whooping Cough . .	(Nil.)	(Nil.)
Diarrhœa	(1)	(1)

WATER SUPPLY—

The supply has been abundant and constant. There has been a shortage at High Briery, and the Medical Officer of Health considers that " it is unfortunate that the suggestion made of constructing a tank to overcome this, which is a recurring difficulty, could not have been followed up. In only two instances are pumps still in use, in property some distance from a main.

SEWERAGE—

Two new sewers, one in Greta Grove Road, and the other in Greta Side, have been laid. The Sewage disposal works are satisfactory.

SCAVENGING—

Bi-weekly collection of ashes continues. There are still a number of insanitary dustbins in use. Most of the refuse is deposited at Cass.

HOUSING—

(*a*) New Houses :—Not mentioned. (*b*) Insanitary Property :—Under the Housing (Inspection of District) Regulations, 156 houses were inspected, none were found unfit for habitation, and no representations were made. One Closing Order was made, and one house put into a fit state for human habitation after the making of a Closing Order. The defects in 53 houses were remedied with the making of Closing Orders.

NUISANCES—

36 nuisances seem to have been dealt with.

DAIRIES, COWSHEDS AND MILK-SHOPS—

Number not stated. All are systematically inspected, and the Veterinary Inspector reports that the byres are clean, and the cattle in excellent condition and free from disease.

One dairy outside the district supplies milk only from cows which have passed the tuberculin test.

SLAUGHTER HOUSES—

(4). Systematically inspected. One is reported on as being unsatisfactory.

COMMON LODGING HOUSES—

Contracts have been let for the building of the Council's Common Lodging House. The one remaining has been made more habitable.

Food Inspection—

Some decomposed fish was seized by the Sanitary Inspector. Illness was traced to some bad fruit. In both cases a warning was given.

Factories and Workshops—

42 workshops, 23 factories, and 11 bakehouses. 111 inspections have been made.

MARYPORT.

FRED PROUD, M.D., M.R.C.S.
Medical Officer of Health.

Vital Statistics.	1914.	1913.
Population	11,423	11,423
Birth-rate	27.7	30.0
Death-rate	14.4	14.0
Zymotic death-rate	1.8	0.7
Phthisis death-rate	0.6	0.5
Total Tuberculosis death-rate	0.7	0.5
Respiratory diseases death-rate	2.3	3.0
Infant mortality rate per 1,000 births	123	81

Infectious Diseases Cases (*and deaths*)	1914.	1913.
Total notifications	49	45
Smallpox	Nil.	Nil.
Scarlet Fever	21	3
Diphtheria	10	13
Fevers (Enteric, &c.)	1	1
Puerperal Fever	Nil.	Nil.
Pulmonary Tuberculosis	12	19
Cases treated in Hospital	Nil.	Nil.
Measles	(1)	(Nil.)
Whooping Cough	(10)	(1)
Diarrhœa	(4)	(5)

Water Supply—

The Medical Officer of Health reports that "no change has occurred during the year, and there has been no steps taken to lesson the riparian pollution."

None of the following matters appear to be dealt with in the report of the Medical Officer. I am indebted to the report of the Inspector of Nuisances for the information.

Sewerage—

416 feet of new drainage has been laid. The sewer appears to empty itself on the shore near to low water mark.

Scavenging—

House refuse is collected daily in covered carts. The refuse is deposited on the shore below high-water mark, to be washed away by the tide. "The place of deposit is well-removed from dwelling houses."

HOUSING—

Housing, Town Planning, &c., Act. Action under Section 15: 628 houses inspected, 465 found satisfactory, 163 found not reasonably fit for habitation. 51 notices were given to execute work, in 17 of which the notice was complied with, and in 22 instances the landlord elected to close the house instead of complying with the notices. Action under Section 17: 11 houses were found to be unfit for habitation; no representations were made to the local authority, but 4 houses were closed without the making of a Closing Order, and 9 houses were made fit for habitation without the making of a Closing Order.

NUISANCES—

287 preliminary notices to abate nuisances were served, 252 were complied with; 8 statutory notices were served and complied with, 923 nuisances were abated, and 46 were being abated.

DAIRIES, COWSHEDS AND MILK-SHOPS—

19 cowsheds. 13 cowkeepers, 7 of whom sell milk retail. 63 inspections have been made. All the cowsheds have had the cobbled floors replaced by cement concrete.

SLAUGHTER HOUSES—

Number not stated. 160 visits have been paid. No information is given as to their condition.

COMMON LODGING HOUSES—

Four to which 224 visits have been paid. In one instance the keeper had to be warned regarding the dirty condition of the bedding and rooms.

FOOD INSPECTION—

2,185 lbs. of meat destroyed on account of tuberculosis.

OFFENSIVE TRADES—

Number and kind of these is not stated. 56 inspections were made of these premises.

FACTORIES AND WORKSHOPS—

74 workshops and 10 workplaces. 143 inspections have been made. Three defects found and remedied.

Six lists of outworkers were received.

MILLOM.

P. B. STONEY, M.R.C.S., &c., MEDICAL OFFICER OF HEALTH.

Vital Statistics.

	1914.	1913.
Population	8,654	8,654
Birth-rate	21.3	20.2
Death-rate	13.7	15.9
Zymotic death-rate ..	0.1	1.7
Phthisis death-rate ..	1.2	1.2
Total Tuberculosis death-rate.. ..	1.6	2.1
Respiratory diseases death-rate.. ..	2.3	2.3
Infant mortality rate per 1,000 births ..	97	137

Infectious diseases Cases (and deaths)

	1914.	1913.
Total notifications ..	97	82
Smallpox	Nil.	Nil.
Scarlet Fever ..	9	20
Diphtheria	11	17
Fevers (Enteric, &c.)	3	8
Puerperal Fever ..	Nil.	Nil.
Pulmonary Tuberculosis	43	21
Cases treated in Hospital	23	44
Measles	(Nil.)	(8)
Whooping Cough ..	(Nil.)	(2)
Diarrhœa	(1)	(2)

WATER SUPPLY—

Is from a reservoir about six miles distant. It is pure, except for some earthy matter, and of ample quantity. The Medical Officer of Health expresses the opinion that filtering beds are desirable, and also thinks that there is some risk of contamination from a farm on the gathering ground.

SEWERAGE—

Complete in all parts of the district. The sewers are flushed regularly.

SCAVENGING—

House refuse is removed by the Council's men. How often is not stated, and is quite satisfactory.

HOUSING—

(*a*) New Houses :—None. (*b*) Insanitary Property :—Under the Housing (Inspection of District) Regulations, 513 houses were inspected. The report gives no further details of this work beyond stating that " a few trivial defects were found, and received attention at once."

NUISANCES—

Not mentioned.

DAIRIES, COWSHEDS AND MILK-SHOPS—

13 purveyors of milk in the district. The report contains no information as to the condition of these premises.

Slaughter Houses—

(9). Have been inspected, and found satisfactory.

Common Lodging Houses—

One satisfactory.

Food Inspection—

No information given.

Factories and Workshops—

15 workshops on the register, and 10 inspections made. No defects noted.

PENRITH.

FRANCIS HASWELL, M.D., M.R.C.S., &c.,
Medical Officer of Health.

A. STUART MACTAVISH, M.B., Ch.B.,
Acting Medical Officer of Health.

Vital Statistics.

	1914.	1913.
Population	8,910	8,931
Birth-rate	20.2	21.5
Death-rate	15.4	15.4
Zymotic death-rate ..	0.4	0.2
Phthisis death-rate ..	0.4	0.3
Total Tuberculosis death-rate.. ..	0.7	0.6
Respiratory diseases death-rate.. ..	1.5	1.7
Infant mortality rate per 1,000 births ..	100	99

Infectious Diseases Cases (and deaths)

	1914.	1913.
Total notifications ..	58	30
Smallpox	Nil.	Nil.
Scarlet Fever ..	10	2
Diphtheria	17	8
Fevers (Enteric, &c)	1	Nil.
Puerperal Fever ..	4	Nil.
Pulmonary Tuberculosis	18	20
Cases treated in Hospital	26	7
Measles	(Nil.)	(Nil.)
Whooping Cough ..	(Nil.)	(Nil.)
Diarrhœa	(3)	(Nil.)

Water Supply—

From Hayeswater by gravitation. A constant supply, and of excellent quality. About 50 houses in outlying places are supplied from well and other sources, all of which are described as reasonably good.

Sewerage—

The whole town is drained by a system of sewers to Whinfell Holme, and the sewage treated by intermittent downward filtration. The result is excellent.

Scavenging—

House refuse is removed by the Council's carts. The refuse receptacles are kept within the owner's premises till taken and emptied by the scavengers, instead of, as formerly, being put on the street. This, as the Medical Officer of Health says, " both from an aesthetic and sanitary standpoint, marks a considerable advance upon former methods."

Paper and bulky material are separated from the ashes and sold, a small revenue being made. The main advantage, however, is that the paper is not blown about as formerly.

HOUSING—

(*a*) New Houses :—2. (*b*) Insanitary Property :— Under the Housing (Inspection of District) Regulations, 57 houses were inspected, none were considered unfit for habitation, in 38 the defects were remedied without the making of a Closing Order. Three houses have been reconstructed where Closing Orders were in operation. Another block of property has been reconstructed with making a Closing Order. From this four decent dwellings have been constructed.

NUISANCES—

The number of nuisances dealt with is not stated, but the Medical Officer says :—" Considerable attention has been paid to the inspection of private drains, and also nuisances which arise are dealt with."

DAIRIES, COWSHEDS AND MILK-SHOPS—

(31). These have been inspected, and minor defects have been remedied. The Veterinary Inspector reports that the cows generally are healthy. Three cases of tuberculosis of the udder were detected, and the milk from the cows was discontinued from being sold.

SLAUGHTER HOUSES—

All private, but the number is not stated. Minor defects have been attended to.

COMMON LODGING HOUSES—

One in the district, well managed, and regularly visited by the Inspector.

FOOD INSPECTION—

No complaints have been received or irregularities detected in the matter of unsound food.

NOTIFICATION OF BIRTHS ACT—

This Act was adopted, and is administered by the Local Sanitary Authority. The Health Visitor has paid 730 visits. The work done appears to be satisfactory, and the visits are welcomed by the parents.

FACTORIES AND WORKSHOPS—

There are 127 registered workshops, and to these 89 inspections were made. Seven defects were found and 4 remedied. Eight lists of outworkers were received.

WIGTON.

A. SMITH HANNAY, M.B., Ch.B.

MEDICAL OFFICER OF HEALTH.

Vital Statistics.

	1914.	1913.
Population	3,687	3,687
Birth-rate	18.1	21.5
Death-rate	12.7	13.0
Zymotic death-rate	—	0.5
Phthisis death-rate	0.5	0.5
Total Tuberculosis death-rate	1.3	0.8
Respiratory diseases death-rate	2.2	1.3
Infant mortality rate per 1,000 births	89	88

Infectious Diseases Cases (and deaths)

	1914.	1913.
Total notifications	12	15
Smallpox	Nil.	Nil.
Scarlet Fever	1	2
Diphtheria	Nil.	Nil.
Fevers (Enteric, &c.)	Nil.	Nil.
Puerperal Fever	Nil.	Nil.
Pulmonary Tuberculosis	5	5
Cases treated in Hospital (No hospital)		
Measles	(Nil.)	(Nil.)
Whooping Cough	(Nil.)	(Nil.)
Diarrhœa	(Nil.)	(2)

WATER SUPPLY—

From Bolton Park and Thornthwaite Springs. Has been abundant except for two or three weeks at the end of a prolonged dry period. Is stated to be free from risk of contamination.

SEWERAGE—

The sewage is treated to a sewage farm. The system is described as most satisfactory in every way.

SCAVENGING—

House refuse is removed twice weekly. The Medical Officer of Health advocates the use of movable ashbins with suitable coverings, and says : " the use of these alone in the district would be a marked improvement."

Housing—

No action appears to have been taken under the Housing (Inspection of District) Regulations.

Nuisances—

225 inspections were made, but no details are given.

Dairies, Cowsheds and Milk-shops—

Seven cowsheds in the district. The cows are visited regularly by the Veterinary Inspector, whose reports are satisfactory.

Slaughter Houses—

(6). Are stated to be satisfactory, and are regularly visited.

Common Lodging Houses—

Not mentioned.

Food Inspection—

Not mentioned.

Offensive Trades—

Not mentioned.

Factories and Workshops—

There are 70 registered workshops, to which monthly visits appear to be paid.

One underground bakehouse is illegally occupied. Two lists of outworkers were received.

ALSTON (RURAL).

STEWART CARSON, M.B., C.M.,
Medical Officer of Health.

Vital Statistics.

	1914.	1913.
Population	3,083	3,095
Birth-rate	18.4	17.7
Death-rate	11.0	15.5
Zymotic death-rate ..	0.6	0.3
Phthisis death-rate ..	0.3	1.6
Total Tuberculosis death-rate.. ..	0.3	2.6
Respiratory diseases death-rate.. ..	1.6	0.9
Infant mortality rate per 1,000 births	87	109

Infectious Diseases Cases (and Deaths)

	1914.	1913.
Total notifications ..	14	13
Smallpox	Nil.	Nil.
Scarlet Fever ..	2	1
Diphtheria	1	2
Fevers (Enteric, &c.)	1	Nil.
Puerperal Fever ..	1	Nil.
Pulmonary Tuberculosis	4	7
Cases treated in Hospital	No Hospital.	
Measles	(Nil.)	(Nil.)
Whooping Cough ..	(Nil.)	(1)
Diarrhœa	(1)	(Nil.)

WATER SUPPLY—

Generally the district is fairly well supplied with water, which, however, is hard, and in the Nenthead district contains iron.

The report draws attention again to districts where the water supply requires to be improved.

Leadgate has been supplied during the year.

A special report on the supply to North Parkside was submitted to the Council in July.

SEWERAGE—

" Nothing to report under this heading."

SCAVENGING—

The report does not deal with this matter, merely stating that tips for night soil and house refuse are provided in the villages of Nenthead and Garrigill, and that the refuse is removed twice a week in the former. and once a week in the latter vlllage.

House refuse is removed twice weekly in Alston.

HOUSING—

(*a*) New Houses :—None were built, but three were re-modelled. (*b*) Insanitary Property :—Under the Housing (Inspection of District) Regulations, 42 houses were inspected, one was considered to be unfit for human habitation. No representations were made, nor were any Closing Orders made.

NUISANCES—

11 were reported, five notices were served, and six nuisances were abated without notice.

DAIRIES, COWSHEDS AND MILK-SHOPS—

The number is not stated. There are no milk-shops. The dairies and cowsheds are reported on inspection to be quite satisfactory and clean.

SLAUGHTER HOUSES—

Number not stated. All reported as satisfactory, and provided with galvanised iron receptacles for offal.

COMMON LODGING HOUSES—

One, which is satisfactory.

Food Inspection—

No diseased meat found.

Factories and Workshops—

63 inspections made. No defects found.

BOOTLE (RURAL).

W. A. JOHNSTON, L.R.C.P. & S.I.

Medical Officer of Health.

Vital Statistics.

	1914.	1913.
Population	5,664	5,664
Birth-rate	18.3	21.0
Death-rate	8.8	14.1
Zymotic death-rate ..	0.1	Nil.
Phthisis death-rate ..	0.7	1.0
Total Tuberculosis death-rate.. ..	0.8	1.0
Respiratory diseases death-rate.. ..	0.5	1.9
Infant mortality rate per 1,000 births ..	48	59

Infectious Diseases Cases (*and deaths*)

	1914.	1913.
Total notifications ..	24	15
Smallpox	Nil.	Nil.
Scarlet Fever ..	5	3
Diphtheria	2	2
Fevers (Enteric, &c.)	Nil.	2
Puerperal Fever ..	Nil.	Nil.
Pulmonary Tuberculosis	9	7
Cases treated in Hospital	6	5
Measles	(Nil.)	(Nil.)
Whooping Cough ..	(Nil.)	(Nil.)
Diarrhœa	(1)	(Nil.)

Water Supply—

The larger part of this rural district is supplied, by gravitation schemes, with plentiful and wholesome water Several new supplies have been put in during the year, and a few outlying parts still remain to be supplied.

Sewerage—

All the existing systems have worked well. No new schemes have been carried out during the year.

Scavenging—

The Sanitary Inspector reports that "the question of scavenging is receiving more attention than formerly." A system of scavenging for the village of Ravenglass is under consideration.

Housing—

(*a*) New Houses :—2 have been erected at Waberthwaite, one reconstructed and plans passed for converting suitable buildings into three others.

Plans have been passed for the reconstruction of 3 at Ravenglass. (*b*) Insanitary Property :—Under the Housing

(Inspection of District) Regulations, 62 houses were inspected, 37 were considered "injurious to health." Six representations were made to the local authority, and 2 Closing Orders were made. 28 houses were repaired without making a Closing Order.

Nuisances—

Not mentioned.

Dairies, Cowsheds and Milk-shops—

No milk-shops. The cowsheds are regularly inspected, and are for the most part satisfactory. The dairies are clean and well kept.

Slaughter Houses—

(5). All are regularly inspected, and are satisfactory.

Common Lodging Houses—

None.

Food Inspection—

No unsound or unwholesome food has been dealt with.

Factories and Workshops—

41 on the register, which have been inspected, minor defects were pointed out and remedied in 4 cases. Much of the above information is taken from the report of the Sanitary Inspector.

BRAMPTON (RURAL).

WILLIAM SYMINGTON, M.B., C.M., Ed.,
Medical Officer of Health.

Vital Statistics.

	1914.	1913.
Population	7,982	7,982
Birth-rate	17.9	13.6
Death-rate	14.7	14.0
Zymotic death-rate ..	0.7	0.2
Phthisis death-rate ..	1.2	0.7
Total Tuberculosis death-rate.. ..	1.3	1.5
Respiratory diseases death-rate.. ..	1.3	0.1
Infant mortality rate per 1,000 births ..	41.9	55

Infectious Diseases Cases (and deaths)

	1914.	1913.
Total notifications ..	23	44
Smallpox	Nil.	Nil.
Scarlet Fever ..	6	30
Diphtheria	10	5
Fevers (Enteric, &c.)	Nil.	Nil.
Puerperal Fever ..	1	Nil.
Pulmonary Tuberculosis	4	5
Cases treated in Hospital		No hospital
Measles	Nil.	Nil
Whooping Cough ..	(Nil.)	(1)
Diarrhœa	(Nil.)	(Nil.)

WATER SUPPLY—

The town of Brampton is supplied from the old or glazier supply, and is supplemented, if necessary, from the Gelt supply. The new Wellmeadow supply, to a small part of the town, has now been done away with, and the Gelt water substituted. Many houses near the new mains have been connected up during the year.

Talkin village is now supplied with Gelt water.

Cumwhitton, whose supply has always been unsatisfactory, is now to be supplied from Knott springs, and plans for this scheme are now before the Local Government Board.

SEWERAGE—

Is still most inadequate in many parts of the district. The scheme for Castlecarrock will shortly be commenced with. The village of Milton is under consideration.

SCAVENGING—

Brampton town seems to be the only part of the district in which scavenging is carried out.

HOUSING—

(*a*) New Houses :—None appear to have been built during the year. (*b*) Insanitary Property :—Under the Housing (Inspection of District) Regulations, 40 houses were inspected, 5 were considered to be unfit for human habitation, 1 was rebuilt and made fit for habitation.

No representations were made to the local authority, 12 were remedied without the making of a Closing Order.

NUISANCES—

Not dealt with.

DAIRIES, COWSHEDS AND MILK-SHOPS—

Number not given. All have been inspected, and kept in a fairly satisfactory condition.

SLAUGHTER HOUSES—

(8). All of which have been inspected.

The slaughter house at Castlecarrock has been reconstructed, and a water supply put in. Those in Brampton are fairly well kept, but are unsuitable for the purpose, and Dr. Symington regrets that " the provision of a public one for the town has apparently been dropped."

Common Lodging Houses—

Two in Brampton. Regularly inspected, and found satisfactory.

Food Inspection—

Not dealt with.

Offensive Trades—

One fellmonger in Brampton.
The premises are kept in a cleanly state.

Factories and Workshops—

Eleven factories and 54 workshops. 73 inspections have been made.

CARLISLE (RURAL).

JAMES MACDONALD, M.D., Medical Officer of Health.

Vital Statistics.	1914.	1913.
Population	11,431	12,216
Birth-rate	18.8	16.9
Death-rate	11.8	12.2
Zymotic death-rate ..	Nil.	0.3
Phthisis death-rate ..	0.7	0.4
Total Tuberculosis death-rate.. ..	0.8	0.6
Respiratory diseases death-rate.. ..	0.8	1.7
Infant mortality rate per 1,000 births ..	50	67

Infectious Diseases Cases (and deaths).	1914.	1913.
Total notifications ..	72	54
Smallpox	Nil.	Nil.
Scarlet Fever ..	22	7
Diphtheria	21	8
Fevers (Enteric, &c.)	1	Nil.
Puerperal Fever ..	Nil.	Nil.
Pulmonary Tuberculosis	15	24
Cases treated in Hospital	31	13
Measles	(Nil.)	(1)
Whooping Cough ..	(Nil.)	(1)
Diarrhœa	(Nil.)	(1)

Water Supply—

No change of any importance has taken place in the water supplies in this district. A scheme for supplying the whole district is, however, under the consideration of the Council.

Sewerage—

The works of sewerage for the village of Blackhall were completed early in the year. Dr. Macdonald also reports that the work of connecting the Garlands Asylum sewers with those of the City is making satisfactory progress. The village of Little Orton was sewered during the year.

SCAVENGING—

In his report, Dr. Macdonald says :—

> " The opportunity may again be taken to call attention to the necessity of a proper system of scavenging in the more populous parts of the district, and to the absence of any official arrangements for the regular removal of house and ash-pit refuse."

NUISANCES—

A tabular statement by the Sanitary Inspector is appended to the report.

MILITARY CAMP—

After referring to the formation of this Camp at Blackhall racecourse, Dr. Macdonald continues as follows :—

> " In August a circular was received from Dr. Newsholme, the Medical Officer to the Local Government Board, inviting Medical Officers of Health of Districts where camps were formed to co-operate with military medical authorities. Acting upon this suggestion, your Officials have endeavoured to give every assistance on the lines laid down in the circular, and among other matters provision was made for the reception of infectious cases at the Fever Hospital, Carlisle. Apart from the prevalence of Influenza, the health of the troops was satisfactory. Late in November, however, a case of Enteric Fever occurred. The man had recently arrived in camp from Workington, where a sharp outbreak of Enteric Fever, associated in its origin with specifically infected shell-fish prevailed, and on enquiry it appeared that the patient had partaken freely of mussels gathered from a polluted source. The case was removed to hospital, the usual precautions were taken, and there was no further spread of the disease. At this time arrangements had been completed for the inoculation of troops with Anti-typhoid vaccine as a protection against Enteric Fever, and this case gave a timely stimulus to the work. In this I had the ready co-operation of Dr. Morison, County Medical Officer, and of Drs. Kenneth and Mark Fraser, two members of his staff. Of the 872 officers and men all, with a few exceptions, were inoculated. In the large majority of cases little or no discomfort supervened, and

in no case was any ill effect observed. The men of the Kendal company were inoculated before their arrival in camp.

"It only remains to add that the general sanitary arrangements of the camp are excellent."

COCKERMOUTH (RURAL).

D. J. McLEISH, M.A., B.Sc., M.D., D.P.H.,
MEDICAL OFFICER OF HEALTH.

Vital Statistics.

	1914.	1913.
Population	22,420	22,360
Birth-rate	27.0	26.7
Death-rate	10.6	12.7
Zymotic death-rate ..	0.35	0.9
Phthisis death-rate ..	0.6	0.8
Total Tuberculosis death-rate.. ..	0.8	0.9
Respiratory diseases death-rate.. ..	1.5	2.5
Infant mortality rate per 1,000 births ..	65	102

Infectious Diseases Cases (*and deaths*)

	1914.	1913.
Total notifications ..	140	101
Smallpox	Nil.	Nil.
Scarlet Fever ..	57	33
Diphtheria	18	23
Fevers (Enteric, &c.)	2	1
Puerperal Fever ..	1	Nil.
Pulmonary Tuberculosis	34	29
Cases treated in Hospital	39	25
Measles	(Nil.)	(7)
Whooping Cough ..	(6)	(Nil.)
Diarrhœa	(2)	(8)

WATER SUPPLY—

The greater part of the district, including the more populous areas, are well supplied with water, from various either public or private supplies.

In 1913, Dr. Mc.Leish reported fully on several very defective supplies, several schemes have been discussed and estimates for two received, but no practical result has followed.

Attention is again drawn to many very unsatisfactory supplies.

SEWERAGE—

Dr. Mc.Leish points out in his reports which parts of the district are well sewered, and also those where improvements are required.

An application from Broughton Moor to borrow £2,400 for sewering the township has been granted, and tenders are now being asked for.

The report points out that Dearham and Broughton, two large mining villages, with a population of nearly one-sixth of the total population of the rural district, still remains unsewered, in spite of repeated reports and recommendations.

Smaller places recommended for attention in the near future are Chapelbrow, Broughton Cross, and an extension at Oughterside.

The sewering of Rosthwaite only awaits the final sanction of the Local Government Board.

SCAVENGING—

The house refuse in Flimby is now collected by an ashcart, instead of being deposited on the beach as formerly. This Dr. Mc.Leish considers "is one of the most satisfactory improvements in your district during the year."

The Council decided to purchase an ashcart for Great Clifton, but this has been delayed on account of the difficulty of getting a suitable tip. A similar provision has been suggested for Great Broughton.

The Medical Officer of Health again draws attention to the unsatisfactory cleaning of midden privies "in practically every district where they are in use."

Wythburn, a district where there are a large number of cesspools and pail privies, is efficiently scavenged by the Manchester Corporation, whose water supply is obtained from Thirlmere in this district.

HOUSING—

(*a*) New Houses:—17 houses have either been built, rebuilt or made by conversion of other houses. (*b*) Insanitary Property:—Under the Housing (Inspection of District) Regulations, 526 houses were inspected, 5 were considered unfit for human habitation, 5 representations were made to the Sanitary Authority (one in respect of a house inspected in 1913), and 4 Closing Orders were made. In 119 houses the defects were remedied with the making of a Closing Order, and one was put into a fit state for habitation after the making of a Closing Order.

Dampness accounted for 31, deficient ventilation for 30, defects in drainage for 16 per cent. of the defects found.

No complaints of lack of housing have been made.

NUISANCES—

443 nuisances have been detected and reported, 492 notices have been sent out, 345 nuisances have been abated.

DAIRIES, COWSHEDS AND MILK-SHOPS—

66 milk-sellers on the register.

The cowsheds may be classed as follows:—26 good, 23 fair, 17 bad.

In five farms improvements have been carried out. Four new milk-sellers have been registered. One farm, the byres of which were unsatisfactory, had notice served to stop selling milk.

SLAUGHTER HOUSES—

(25). Six of which are licenced under the Council's New Bye-laws of date 1908. These licenced slaughter houses are quite satisfactory. Four new slaughter houses have been occupied during the year. Four have been greatly improved. One is quite unfit for the purpose, and is being dealt with by the Council.

56 inspections were made of the slaughter houses.

FOOD INSPECTION—

On only one occasion has bad meat been found in a slaughter house —this was surrendered.

" On account of the large number of these houses (slaughter houses) scattered over a wide area," says Dr. Mc.Leish, " no efficient control can be exercised over the character of the animals slaughtered." No carcases have been found diseased during the year.

OFFENSIVE TRADES—

One, from which no nuisance arises.

FACTORIES AND WORKSHOPS—

150, to which 161 inspections have been made. Only 1 defect was found.

LONGTOWN (RURAL).

-J. L. RANKINE, M.R.C.S., L.R.C.P.,
MEDICAL OFFICER OF HEALTH.

Vital Statistics.

	1914.	1913.
Population	6,167	6,167
Birth-rate	21.4	22.0
Death-rate	14.4	15.8
Zymotic death-rate ..	1.1	0.6
Phthisis death-rate ..	0.9	1.4
Total Tuberculosis death-rate.. ..	1.4	1.9
Respiratory diseases death-rate.. ..	1.7	1.6
Infant mortality rate per 1,000 births ..	136	81

Infectious Diseases Cases (and deaths)

	1914.	1913.
Total notifications ..	126	40
Smallpox	Nil.	Nil.
Scarlet Fever ..	13	11
Diphtheria	96	6
Fevers (Enteric, &c.)	Nil.	Nil.
Puerperal Fever ..	Nil.	4
Pulmonary Tuberculosis	8	15
Cases treated in Hospital	6	3
Measles	(Nil.)	(1)
Whooping Cough ..	(1)	(Nil.)
Diarrhœa	(Nil.)	(1)

WATER SUPPLY—

There was a scarcity of water during the summer in most of the parishes, which have not a piped supply.

SEWERAGE—

Longtown is the only part of the district which is sewered. For the remainder, the sewage is discharged on to land into ditches and becks, ultimately finding its way into one or other of the rivers.

SCAVENGING—

Has been the subject of several reports, and various suggestions for improvement have been considered.

HOUSING—

(*a*) New Houses :—No new houses appear to have been built. (*b*) Insanitary Property :—Under the Housing (Inspection of District) Regulations, 58 houses were inspected, 50 were reported as having defects. 11 Closing Orders were made. 17 houses were vacated after notices and Closing Orders had been served.

NUISANCES—

Number not mentioned. In the Sanitary Inspector's report is the following :—" There is still too large a proportion of cases where, in spite of notice being served, nothing has been done."

DAIRIES, COWSHEDS AND MILK-SHOPS—

One dairy and 18 registered cow-keepers. The dairy is kept scrupulously clean. The cowsheds, with two exceptions, are in good structural condition. They are all kept fairly clean.

SLAUGHTER HOUSES—

The four in Longtown have been kept clean, and nothing was found to complain of.

COMMON LODGING HOUSES—

(1). Is fairly clean, but is not of a very satisfactory description. Few people use it.

FOOD INSPECTION—

Not mentioned.

Factories and Workshops—

65 on the register. 79 inspections made, 2 defects found and remedied.

PENRITH (RURAL).

FRANCIS HASWELL, M.D., M.R.C.S., &c.,
Medical Officer of Health.

A. STUART MACTAVISH, M.B., Ch.B.,
Acting Medical Officer of Health.

Vital Statistics.

	1914.	1913.
Population	12,480	12,503
Birth-rate	17.9	19.3
Death-rate	11.2	11.1
Zymotic death-rate ..	0.2	0.3
Phthisis death-rate ..	0.4	0.4
Total Tuberculosis death-rate.. ..	0.6	0.4
Respiratory diseases death-rate.. ..	1.4	1.9
Infant mortality rate per 1,000 births ..	58	74

Infectious Diseases Cases (and deaths)

	1914.	1913.
Total notifications ..	28	25
Smallpox	Nil.	Nil.
Scarlet Fever ..	2	3
Diphtheria	7	5
Fevers (Enteric, &c.)	Nil.	Nil.
Puerperal Fever ..	Nil.	Nil.
Pulmonary Tuberculosis	13	12
Cases treated in Hospital	2	7
Measles	(Nil.)	(1)
Whooping Coug ..	(Nil.)	(Nil.)
Diarrhœa	(1)	(2)

Water Supply—

All the parishes except 7 in this large area which have not public supplies, and to several of these consideration has been given.

Sewerage—

Many of the villages are sewered. The outfalls are inspected from time to time, but the Medical Officer of Health thinks more attention is required in some cases to the periodical alteration of the sewage flow ; land soon becomes sick, and fresh channels are required leading to a new surface.

Scavenging—

Is as a rule done by the individual.

Housing—

(*a*) New Houses :—11 have been built during the year. (*b*) Insanitary Property :—Under the Housing (Inspection of District) Regulations, 404 houses were inspected, none were considered unfit for habitation, in 80 the defects were remedied without the making of a Closing Order. The main defects found were those referring to closet accommodation, drainage and conditions as regards light, free circulation of air, dampness and cleanliness.

Nuisances—

Six complaints have been received. 580 inspections and 318 re-inspections made.

Dairies, Cowsheds and Milk-shops—

Number not stated. They have all been inspected, and are all in good order.

Slaughter Houses—

(14). Regularly inspected, and their satisfactory condition noted.

Common Lodging Houses—

None.

Food Inspection—

Apparently no unsound food was dealt with during the year.

Factories and Workshops—

70 visits were paid to the 54 workshops. Four defects were found and remedied.

WHITEHAVEN (RURAL).

J. B. FISHER, M.D., D.P.H., Medical Officer of Health.

Vital Statistics.

	1914.	1913.
Population	14,450	14,350
Birth-rate	24.9	25.2
Death-rate	12.3	12.5
Zymotic death-rate ..	0.8	0.9
Phthisis death-rate ..	0.6	0.4
Total Tuberculosis death-rate.. ..	0.9	0.7
Respiratory diseases death-rate.. ..	2.2	2.0
Infant mortality rate per 1,000 births ..	113	106

Infectious Diseases Cases (and deaths)

	1914.	1913.
Total notifications ..	73	159
Smallpox	Nil.	Nil.
Scarlet Fever ..	29	84
Diphtheria	4	12
Fevers (Enteric, &c.)	Nil.	Nil.
Puerperal Fever ..	Nil.	1
Pulmonary Tuberculosis	21	32
Cases treated in Hospital	20	60
Measles	(Nil.)	(9)
Whooping Cough ..	(6)	(Nil.)
Diarrhœa	(6)	(3)

Water Supply—

All the villages and populous parts of the district are now supplied with piped services. A useful table of water supplies to the various villages and hamlets is given in this report.

37 new connections have been made in the Southern district, and, in addition, 6 houses have been supplied from private sources by the owners.

SEWERAGE—

Calder Bridge, Pica, Moresby Parks, Winder Brow, and Winder Gill are mentioned as places requiring attention in this respect now that they have an adequate water supply.

A Local Government Board enquiry was held regarding proposed schemes of sewerage and sewage disposal at Beckermet and Low Mill. With certain slight alterations the Beckermet scheme was approved.

The Low Mill scheme was not approved, but Dr. Fisher remarks :—" The natural difficulties in providing an entirely satisfactory scheme for this place are considerable, owing to the houses being situated in such close proximity to the river Ehen, and at a level so little above that of the river itself, whilst the number of houses to be served by the system is too small to allow of any very great expenditure in carrying the outlet to a great distance."

SCAVENGING—

Not mentioned.

HOUSING—

(*a*) New Houses :—No new houses appear to have been built. (*b*) Insanitary Property :—Under the Housing (Inspection of District) Regulations, 295 houses were inspected, 244 notices were served, 29 were complied with, and 215 not fully complied with. No Closing Orders were made. Representations were made with regard to 3 houses, about which notices had been served, with no result After the representations were made, however, the defects in two of the houses were remedied, and the third one has ceased to be occupied.

NUISANCES—

45 written notices have been served requiring the abatement of nuisances. A large number of verbal notices have also been given. Nearly all the notices given have been complied with.

Dairies, Cowsheds and Milk-shops—

59 cowsheds. The cowsheds have been inspected, and found generally clean and satisfactory.

No registered dairies or milk-shops.

Slaughter Houses—

Number not stated. All have been inspected during the year.

No public slaughter house.

Common Lodging Houses—

None.

Food Inspection—

No case of unsound or diseased meat being exposed or prepared for sale was noted.

Factories and Workshops—

40 are registered. All have been inspected, and found satisfactory. One with defective drains has had new drains laid. No outworkers.

WIGTON (RURAL).

W. PERRY BRIGGS, L.R.C.P., L.R.F.P.S., &c.

Medical Officer of Health.

Vital Statistics.

	1914.	1913.
Population	11,383	11,383
Birth-rate	22.4	23.1
Death-rate	13.0	14.7
Zymotic death-rate ..	0.7	0.3
Phthisis death-rate ..	0.8	1.2
Total Tuberculosis death-rate.. ..	0.8	1.3
Respiratory diseases death-rate.. ..	1.3	2.0
Infant mortality rate per 1,000 births ..	125	102

Infectious Diseases Cases (and deaths)

	1914.	1913.
Total notifications ..	49	42
Smallpox	Nil.	Nil.
Scarlet Fever ..	30	11
Diphtheria ..	2	3
Fevers (Enteric, &c.)	—	1
Puerperal Fever ..	Nil.	Nil.
Pulmonary Tuberculosis	10	17
Cases treated in Hospital	Nil.	(No hospital)
Measles	(Nil.)	(1)
Whooping Cough ..	(Nil.)	(Nil.)
Diarrhœa	(Nil.)	(3)

Water Supply—

A list of villages supplied by gravitation from Overwater is given in this report. This supply is very satisfactory. The villages of Caldbeck, Hesket-New-Market, Ireby, Uldale and Torpenhow, are supplied by gravitation from springs in the vicinity. There is no scarcity, and no complaints as to purity.

"The north-western part of our district," says Dr. Briggs, "is still in great need of a better supply than that derived from wells of doubtful purity."

Bowness parish has made arrangements for being supplied from the Carlisle supply, and awaits the ratification of the Local Government Board.

SEWERAGE—

No large drainage schemes have been carried out. The village of Allonby is the only one with a water carriage system.

The sewering of the village of Fletchertown is in abeyance, owing to uncertainty as to the continuance of the colliery.

SCAVENGING—

A scheme has been adopted in Fletchertown—night soil and ashpit contents are collected twice weekly in a suitable sanitary cart. The Medical Officer of Health says a similar scheme should be adopted for Blennerhasset.

HOUSING—

(*a*) New Houses :—No new houses appear to have been built, but there are plenty of houses in the district. (*b*) Insanitary Property :—Under the Housing (Inspection of District) Regulations, 315 houses were inspected, 205 notices were served to remedy defects, 161 were remedied, and 44 remain. Four houses were considered unfit for habitation, and 4 Closing Orders were made. One house was put into habitable repair after the making of a Closing Order.

NUISANCES—

79 notices to abate nuisances appear to have been served and complied with.

DAIRIES, COWSHEDS AND MILK-SHOPS—

38 cowkeepers and dairymen. Most of the milk is sent to the large towns, and "it not infrequently happens that it is difficult to get it in the villages." Four byres are good, but in the remainder there are many defects of ventilation and lighting. No inspection of cows by a Veterinary Surgeon.

SLAUGHTER HOUSES—

12 private slaughter houses. All have been regularly inspected.

COMMON LODGING HOUSES—

None.

FOOD INSPECTION—

Tuberculous milk was found to have been sent from one dairy. One cow was found with tuberculosis of the udder and lungs, and was slaughtered.

No diseased carcases have come under notice.

FACTORIES AND WORKSHOPS—

46 workshops and 10 bakehouses in the district. All have been inspected, and no defects noted.

PRINCIPAL VITAL STATISTICS FOR 1914.

Table I.

	General Statistics						Statistics relating to Births.			Statistics relating to Deaths.									
										Total Deaths.		Transferable Deaths		Nett Deaths.				Deaths from Zymotic Diseases	
														Under 1 year of age.		At all ages.			
	Area in Acres.	Population 1901 Census.	Population 1911 Census.	Estimated population at middle of 1914.	No. of Inhabited Houses at 1911 Census.	No. of persons per inhabited house at 1911 Census.	Total No. of Births registered during 1914.	Nett Births. *	Birth-rate.	Total number of Deaths registered during 1914.	"Crude" Death-rate.	Of Non-residents registered in the district.	Of Residents not registered in the district.	Number Registered.	Infantile Mortality Rate (*i.e.*, per 1,000 births)	Number Registered.	"Recorded" Death-rate.	Total Deaths	Zymotic Death-rate.
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
URBAN DISTRICTS.																			
Borough of Workington	2466	26143	25099	26000	5045	4.9	698	700	26.9	335	12.8	1	15	69	98	349	13.4	25	0.9
" Whitehaven	1810	19324	19048	19300	3959	4.8	599	592	30.6	355	18.3	44	4	77	130	315	16.3	29	1.5
Arlecdon and Frizington	5554	5341	5184	5180	1052	4.9	169	169	32.6	76	14.6	—	7	16	94	83	16.0	4	0.7
Aspatria	3552	2885	3339	3420	712	4.7	93	91	26.6	32	9.3	5	6	5	55	33	9.6	—	—
Cleator Moor	2947	8120	8302	8300	1626	5.1	247	247	29.7	126	15.8	—	10	25	101	136	16.3	7	0.8
Cockermouth	2425	5355	5203	5153	1167	4.4	135	126	25.2	101	19.6	25	6	16	127	82	16.4	6	1.2
Egremont	2769	5761	6305	6305	1159	5.4	178	178	28.2	100	15.8	—	10	16	89	110	17.4	11	1.7
Harrington	2390	3679	4340	4520	832	5.2	117	119	26.3	47	10.3	2	7	12	102	52	11.5	1	0.2
Holme Cultram	25489	4275	4494	4537	1041	4.2	89	89	19.6	57	12.4	4	6	4	44	59	13.0	2	0.4
Keswick	1166	4451	4403	4403	1060	4.1	78	78	17.7	45	10.0	8	2	3	38	39	8.8	1	0.2
Maryport	1515	11897	11423	11423	2480	4.5	316	316	27.7	158	13.8	2	9	39	123	165	14.4	21	1.8
Millom	1463	10426	8612	8654	1986	4.3	185	185	21.3	109	11.4	—	10	18	97	119	13.7	1	0.1
Penrith	7585	9182	8973	8910	2060	4.3	184	180	20.2	153	17.1	19	4	18	100	138	15.4	4	0.4
Wigton	1002	3692	3687	3687	897	4.1	68	67	18.1	50	13.5	9	6	6	89	47	12.7	—	—
Totals for Urban Districts	62133	120531	118412	119792	25076	4.7	3156	3137	26.1	1744	14.6	119	102	324	103	1727	14.4	112	0.9
RURAL DISTRICTS.																			
Alston	36971	3134	3075	3083	804	4.0	57	57	18.5	33	10.7	—	1	5	88	34	11.0	2	0.6
Bootle	92322	5823	5664	5664	1128	5.0	104	104	18.3	49	8.6	—	1	5	48	50	8.8	1	0.1
Brampton	97697	8785	7982	7982	2332	3.4	143	143	17.9	112	14.0	1	7	6	42	118	14.7	6	0.7
Carlisle	64762	17381	17736	12231	3821	4.5	216	216	18.8	188	16.4	64	12	11	50	136	11.8	1	0.08
Cockermouth	162783	21690	22233	22420	4689	4.7	601	607	27.1	225	10.0	9	22	40	65	238	10.6	8	0.35
Longtown	88475	6676	6167	6167	1420	4.3	132	132	21.4	83	13.4	—	5	18	136	88	14.4	7	1.1
Penrith	180706	13023	12549	12480	2773	4.5	224	224	17.9	126	10.0	3	17	13	58	140	11.2	3	0.2
Whitehaven	74172	12961	14147	14450	2766	5.1	359	361	24.9	167	11.5	5	17	41	113	179	12.3	12	0.8
Wigton	108577	11449	11383	11383	2599	4.3	256	256	22.4	144	12.6	—	5	32	125	149	13.0	8	0.7
Totals for Rural Districts	906465	100922	100936	95860	22332	4.5	2092	2100	21.8	1127	11.7	82	87	171	81	1132	11.8	48	0.5
Administrative County of Cumberland	968598	221453	219348	215652	47408	4.6	5248	5237	24.2	2871	13.3	¶0	‡69	495	94	2940	13.6	160	0.7

* This figure, *i.e.*, nett Births, is got by correcting the figures in column 7 for transferable births.

¶ This figure represents the number of non-residents whose deaths were registered in the Administrative County.

‡ This figure represents the number of residents whose deaths were registered outside of the Administrative County.

¶‡ These figures must obviously differ from the sum of the district totals.

The figures in column 16, *i.e.*, the Nett Deaths, are got by adding the figures in column 13 to, and substracting the figures in column 12 from the figures in column 10, *i.e.*, the Total Deaths.

The " Crude " Death-rate is the death-rate before any correction has been made.

The " Recorded " Death-rate is the death-rate after correcting for transferable deaths.

CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1914.

Table II.

	Smallpox.	Cholera Plague	Diphtheria (including Membranous Croup.	Erysipelas	Scarlet Fever	Typhus Fever	Enteric Fever	Relapsing Fever. Continued Fever.	Puerperal Fever.	Cerebro-spinal Meningitis.	Poliomyelitis.	Ophthalmia Neonatorum.	Pulmonary Tuberculosis.	Other Forms of Tuberculosis.	Total Cases Notified.
URBAN DISTRICTS.															
Workington, Borough	—	—	14 (4)	29	67 (38)	—	40 (36)	—	2	—	—	2	45	9	208 (78)
Whitehaven ,,	—	—	22 (14)	12	22 (17)	7 (7)	7 (4)	1 (1)	—	—	—	14	24	5	114 (43)
Arlecdon and Frizington	—	—	15 (1)	9	14 (7)	—	—	—	—	—	—	—	5 (1)	5	48 (9)
Aspatria	—	—	3	2	8	—	—	—	—	—	—	—	5	1	19
Cleato Moor	—	—	4 (1)	16	52 (15)	—	—	—	—	—	—	—	19	14	105 (16)
Cockermouth	—	—	5	1	7	—	—	—	—	—	—	1	14	3	31
Egremont	—	—	—	9	4 (2)	—	2 (2)	—	—	—	—	—	10 (2)	5	30 (6)
Harrington	—	—	6 (5)	—	5	—	1 (1)	—	1	—	—	1	3	3	20 (6)
Holme Cultram	—	—	18 (10)	—	2	—	—	—	1	—	—	—	3	4	28 (10)
Keswick	—	—	2 (1)	7	2 (1)	—	—	—	—	—	—	1	2	2	16 (2)
Maryport	—	—	10	2	21	—	1	—	—	—	—	2	12	1	49
Millom	—	—	11 (11)	4	9 (9)	—	3 (3)	—	—	—	—	—	43	27	97 (23)
Penrith	—	—	17 (15)	5	10 (10)	—	1 (1)	—	4	—	1	—	18	2	58 (26)
Wigton	—	—	—	5	1	—	—	—	—	—	—	—	5	1	12
Totals for Urban Districts	—	—	127 (62)	101	224 (99)	7 (7)	55 (47)	1 (1)	8	—	1	21	208 (3)	82	835 (219)
RURAL DISTRICTS.															
Alston	—	—	1	4	2	—	1	—	1	—	—	1	4	—	14
Bootle	—	—	2 (2)	1	5 (4)	—	—	—	—	—	—	—	9	7	24 (6)
Brampton	—	—	10	1	6	—	—	—	1	—	—	—	4	1	23
Carlisle	—	—	21 (12)	7	22 (18)	—	1 (1)	—	—	—	—	—	15	6	72 (31)
Cockermouth	—	—	18	17	57 (33)	—	2	—	1	—	1	—	34 (5)	10 (1)	140 (39)
Longtown	—	—	96 (6)	2	13	—	—	—	—	—	—	—	8	7	126 (6)
Penrith	—	—	7 (1)	6	2 (1)	—	—	—	—	—	—	—	13	—	28 (2)
Whitehaven	—	—	4	13	29 (20)	—	—	—	—	—	—	2	21	4	73 (20)
Wigton	—	—	3	7	33	—	1	—	—	—	—	—	23	7	74
Total, Rural Districts	—	—	162 (21)	58	169 (76)	—	5 (1)	—	3	—	1	3	131 (5)	42 (1)	574 (104)
Totals for Administrative County	—	—	289 (83)	159	393 (175)	7	60 (48)	1 (1)	11	—	2	24	339 (8)	124 (1)	1409 (323)

The figures in brackets indicate the number of cases removed to hospital.

CAUSES OF DEATH DURING THE YEAR 1914.

Table III.

		URBAN DISTRICTS. Workington (Borough).	Whitehaven (Borough).	Arlecdon & Frizington.	Aspatria.	Cleator Moor.	Cockermouth.	Egremont.	Harrington.	Holme Cultram.	Keswick.	Maryport.	Millom.	Penrith.	Wigton.	Total & means for combined Urban Districts.	RURAL DISTRICTS Alston.	Bootle.	Brampton.	Carlisle.	Cockermouth.	Longtown.	Penrith.	Whitehaven	Wigton.	Total & means for combined Rural Districts.	Total for Administrative County
1	Enteric Fever	9	1	—	—	—	—	—	1	—	—	1	—	—	—	12	1	—	—	—	—	—	1	—	—	2	14
2	Small-pox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3	Measles	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	2	—	—	—	—	—	—	2	3
4	Scarlet Fever	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	1	—	—	2	3	5
5	Whooping Cough	1	11	3	—	3	5	7	—	1	—	10	—	—	—	41	—	—	2	—	6	1	—	6	1	16	57
6	Diphtheria and Croup	1	5	—	—	2	—	—	—	1	—	5	—	1	—	15	—	—	2	—	—	5	1	—	1	9	24
7	Influenza	1	1	—	—	—	—	3	—	—	—	—	—	2	1	8	—	—	1	—	2	1	2	—	2	8	16
8	Erysipelas	—	1	—	—	—	—	—	—	—	—	1	—	—	—	2	—	—	—	—	1	—	1	1	1	4	6
9	Phthisis (Pulmonary Tuberculosis)	31	18	5	2	8	4	11	—	1	1	7	11	4	2	105	1	4	10	8	15	6	6	9	10	69	174
10	Tuberculous Meningitis	3	3	1	—	—	1	—	1	1	—	—	2	2	2	16	—	1	—	1	2	2	1	—	—	7	23
11	Other Tuberculous Diseases	7	4	1	—	7	—	4	1	2	—	1	1	1	1	30	—	—	1	1	1	1	1	4	—	9	30
12	Cancer, malignant disease	21	14	6	5	6	9	7	6	9	4	11	5	16	4	123	4	—	10	12	13	11	12	14	12	88	211
13	Rheumatic Fever	3	—	—	—	—	—	2	—	—	—	—	—	—	—	5	—	—	2	—	—	—	—	1	—	3	8
14	Meningitis	5	1	1	—	1	1	1	—	—	—	—	1	—	—	11	—	—	1	2	2	—	—	4	—	9	20
15	Organic Heart Disease	35	24	9	7	20	7	16	3	7	6	19	12	19	9	193	1	1	22	12	19	14	20	13	27	129	322
16	Bronchitis	17	44	10	3	13	8	15	1	4	2	13	11	2	5	148	2	2	5	4	17	7	6	17	10	70	218
17	Pneumonia (all forms)	21	17	2	2	8	3	7	7	4	3	13	7	8	3	105	—	1	6	4	12	3	5	13	5	49	154
18	Other Diseases of Respiratory Organs	5	3	2	—	—	1	—	—	—	1	1	2	4	—	19	3	—	—	1	5	1	7	2	—	19	38
19	Diarrhœa and Enteritis	12	11	1	—	2	1	4	—	—	1	4	1	3	—	40	1	1	—	1	2	—	1	6		16	56
20	Appendicitis and Typhlitis	2	—	—	—	—	1	—	1	—	—	1	—	3	—	8	—	1	2	—	1	—	1	1	—	6	14
21	Cirrhosis of Liver	1	4	1	—	1	—	—	—	1	—	—	—	—	—	8	—	—	1	1	3	—	—	1	—	6	14
21A	Alcoholism	2	1	—	—	—	2	—	—	—	1	1	—	—	—	7	—	—	1	2	1	1	—	—	—	5	12
22	Nephritis and Bright's Disease	16	11	—	1	5	3	4	3	4	1	1	5	5	1	60	2	5	—	8	6	1	3	3	—	28	88
23	Puerperal Fever	2	—	—	—	—	—	—	—	—	—	—	—	3	—	5	—	—	1	—	—	—	1	—	—	2	7
24	Other Accidents and Diseases of Pregnancy and Parturition	—	3	3	1	1	1	—	1	—	—	1	—	—	—	11	—	—	—	2	1	—	1	—	—	4	15
25	Congenital Debility and Malformation, including Premature Birth	23	31	8	3	18	5	5	6	2	2	10	13	9	4	139	3	3	4	7	16	8	4	14	12	71	210
26	Violent Deaths, excluding Suicide	11	16	3	1	1	1	2	4	2	1	5	6	1	1	55	—	—	2	1	11	3	2	4	3	26	81
27	Suicide	2	2	1	—	—	—	—	—	1	1	1	1	—	1	10	—	—	—	1	7	—	1	3	—	12	22
28	Other Defined Diseases	106	65	1	8	27	26	23	17	6	13	50	31	55	13	454	13	18	43	39	81	23	61	41	33	352	806
29	Diseases ill-defined or unknown	10	24	12	5	13	3	—	—	14	2	1	—	—	—	84	3	13	—	29	14	—	1	22	26	108	192
	Totals	349	315	83	38	136	82	111	52	60	39	158	109	138	47	1717	34	50	118	136	238	89	139	179	149	1132	2849

INFANTILE MORTALITY DURING THE YEAR 1914.

Table IV.

																																						Net Births in the year of		Net Deaths in the year of	
	Under 1 week.	1—2 weeks.	2—3 weeks.	3—4 weeks	Total under 1 month.	1—3 months.	3—6 months.	6—9 months.	9—12 months.	Total under one year.	Smallpox.	Chicken Pox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Croup.	Erysipelas.	Tuberculous Meningitis.	Abdominal Tuberculosis	Other Tuberculous Diseases.	Meningitis (not Tuberculous).	Convulsions	Laryngitis	Bronchitis.	Pneumonia (all forms).	Diarrhœa.	Enteritis.	Gastritis.	Syphilis.	Rickets.	Suffocation, overlaying.	Injury at Birth	Atelectasis.	Congenital Malformations.	Premature Birth.	Atrophy, Debility, and Marasmus.	Other causes.	Legitimate.	Illegitimate.	Legitimate Infants.	Illegitimate Infants.
URBAN DISTRICTS.																																									
Workington (Borough)	21	—	1	3	25	8	18	10	8	69	—	—	—	—	1	—	—	1	2	1	2	8	—	5	9	6	3	2	—	—	—	—	—	3	10	10	6	675	25	63	6
Whitehaven do.	19	3	3	2	27	11	17	7	15	77	—	—	—	—	7	—	—	—	—	1	—	5	—	14	2	7	2	1	—	—	—	—	—	—	17	13	8	566	26	77	—
Arlecdon and Frizington	1	—	1	—	2	4	7	1	2	16	—	—	—	—	2	—	—	—	—	—	—	2	—	2	2	—	1	—	—	—	—	—	—	—	—	7	—	163	6	15	1
Aspatria	3	—	1	—	4	—	1	—	—	5	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	85	6	4	1
Cleator Moor	7	2	—	2	11	3	7	1	3	25	—	—	—	—	—	—	—	—	—	—	—	1	—	3	3	1	—	—	—	—	—	1	2	1	4	8	1	237	10	21	4
Cockermouth	3	2	1	1	7	2	3	1	3	16	—	—	—	—	4	—	—	—	—	—	—	1	—	2	2	1	—	—	—	—	—	—	—	—	1	4	1	120	6	15	1
Egremont	2	—	—	1	3	4	4	3	2	16	—	—	—	—	3	—	—	—	—	—	2	—	—	3	—	1	1	—	—	—	1	—	—	—	1	4	—	171	7	16	—
Harrington	3	1	—	3	7	—	2	1	2	12	—	—	—	—	—	—	—	—	—	—	—	—	1	—	2	—	—	1	—	—	—	—	—	1	2	3	2	112	7	11	1
Holme Cultram	1	1	—	—	2	1	—	1	—	4	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	81	8	4	—
Keswick	1	—	2	—	3	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	1	—	—	73	5	3	—
Maryport	9	—	1	—	10	10	4	11	4	39	—	—	—	—	7	1	—	—	—	—	1	4	—	5	7	3	—	—	1	1	—	—	2	1	5	1	—	304	12	34	5
Millom	5	2	—	—	7	3	5	2	1	18	—	—	—	—	—	—	—	1	1	—	—	1	1	2	—	—	—	1	—	—	—	1	2	—	4	4	—	174	11	14	4
Penrith	6	1	2	1	10	3	4	1	—	18	—	—	—	—	—	—	—	—	—	1	2	—	—	—	2	—	1	—	—	—	—	—	—	—	6	3	3	161	19	14	4
Wigton	3	—	—	—	3	—	1	1	1	6	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	3	1	—	59	8	6	—
Total for Urban Districts	84	12	12	13	121	49	73	40	41	324	—	—	—	—	25	1	—	3	3	3	7	25	2	36	30	19	9	5	1	1	1	2	6	8	57	59	21	2981	156	297	27
RURAL DISTRICTS.																																									
Alston	2	1	1	—	4	—	1	—	—	5	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	2	1	—	53	4	5	—
Bootle	3	—	—	1	4	—	1	—	—	5	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	1	—	2	—	—	97	7	5	—
Brampton	2	1	—	—	3	—	2	1	—	6	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	4	—	—	123	20	5	1
Carlisle	6	—	—	—	6	4	1	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	1	—	4	2	2	200	16	11	—
Cockermouth	13	4	1	2	20	7	7	4	2	40	—	—	—	—	2	—	—	—	—	—	—	4	—	5	2	1	1	2	—	—	—	—	1	2	8	6	6	579	28	37	3
Longtown	8	—	—	1	9	4	1	2	2	18	—	—	—	—	1	—	—	—	—	—	—	2	—	1	—	3	2	—	1	—	—	—	1	—	5	1	1	116	16	14	4
Penrith	2	1	2	—	5	4	2	1	1	13	—	—	—	—	—	—	—	—	—	—	3	1	—	1	1	—	—	—	—	—	—	—	1	—	1	4	1	220	11	11	2
Whitehaven	7	—	1	1	9	11	10	7	4	41	—	—	—	—	3	—	—	—	—	—	2	6	—	8	2	4	1	—	1	—	—	—	—	3	3	7	1	342	19	38	3
Wigton	14	—	1	—	15	4	7	2	4	32	—	—	—	1	1	—	1	—	—	—	—	2	—	2	1	—	2	—	—	—	—	—	—	—	12	7	3	234	22	28	4
Total for Rural Districts	57	7	6	5	75	34	32	17	13	171	—	1	—	1	8	—	1	—	—	—	5	17	—	19	6	9	6	2	2	—	1	—	5	5	41	28	14	1964	143	154	17
Total for Administrative County	141	19	18	18	196	83	105	57	54	495	—	1	—	1	33	1	1	3	3	3	12	42	2	55	36	28	15	7	3	1	2	2	11	13	98	87	35	4945*	299*	451	44

* The discrepancy between the total of these two columns and the total of column 8 Table 1, is due to an error in one of the District reports.